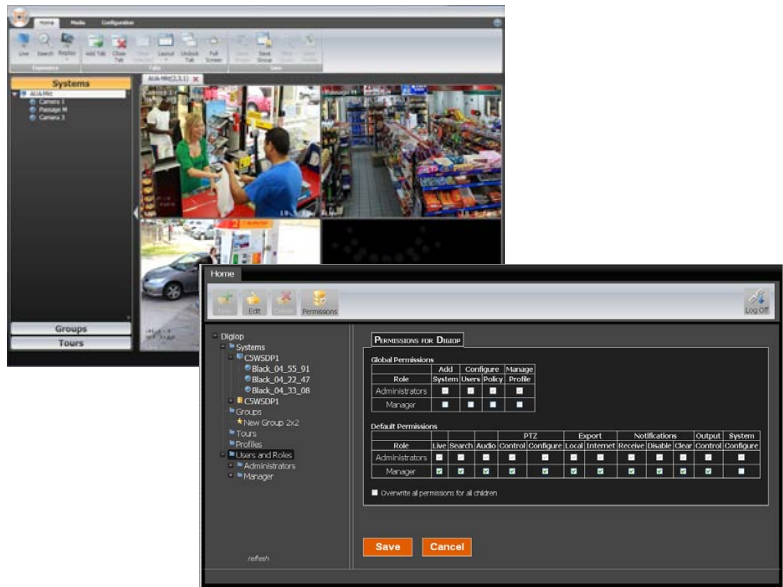


# DIGIOP™ Control User Manual

Products: AI Series, EI Series Network Video Recorders



Please read this manual before using your server, and always follow the instructions for safety and proper use. Save this manual for future reference.



## Revision History

Revision	Date	Reason for Change
1.0	7/18/11	Initial release.

## LEGAL NOTICE

DIGIOP™ products are designed to meet safety and performance standards with the use of specific DIGIOP authorized accessories. DIGIOP disclaims liability associated with the use of non-DIGIOP authorized accessories.

The recording, transmission, or broadcast of any person's voice without their consent or a court order is strictly prohibited by law.

DIGIOP makes no representations concerning the legality of certain product applications such as the making, transmission, or recording of video and/or audio signals of others without their knowledge and/or consent. We encourage you to check and comply with all applicable local, state, and federal laws and regulations before engaging in any form of surveillance or any transmission of radio frequencies.

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## SECTION 1

# System Overview

DIGIOP ELEMENTS™ is a ground breaking Video-Enhanced Intelligence Platform that provides a single, user-friendly interface to the critical video and data intelligence you rely on to effectively manage your business.

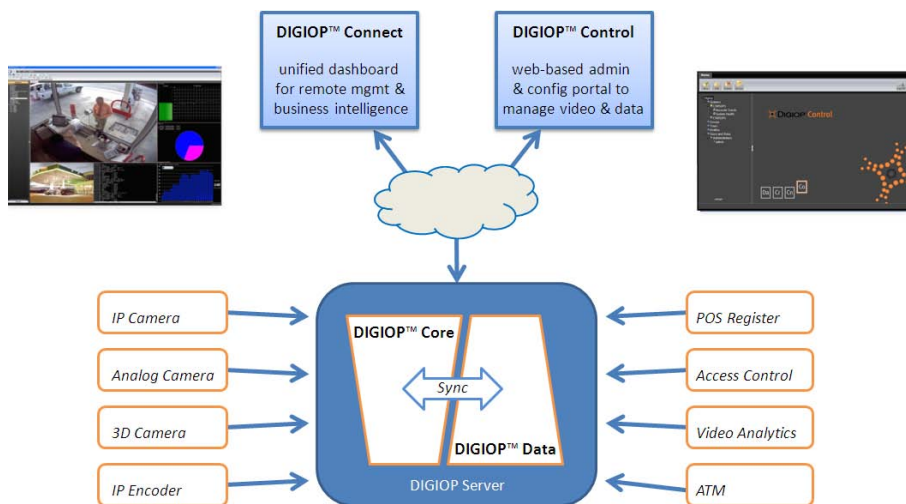
The DIGIOP ELEMENTS software suite extends the value of surveillance video beyond the traditional benefits of loss prevention and risk management, by combining raw video with information from back-office systems and video analytics. The result is an integrated dashboard that provides your functional leaders (management, operations, merchandising, marketing, and IT) with an accurate real-time and recorded view of the performance of the business.

DIGIOP ELEMENTS features four powerful software components: DIGIOP™ Connect, DIGIOP Control, DIGIOP Core, and DIGIOP Data. Together, these elements provide the foundation for a revolutionary tool to manage your business intelligence.

- **DIGIOP™ Core**
  - DIGIOP™ Core is an extensible video recording platform that provides real-time recording of analog and IP cameras.
  - DIGIOP™ Core software can be configured to display live video as it's recorded, or to run in the background and archive video data for display remotely using DIGIOP™ Connect.
- **DIGIOP™ Control**
  - A web-based administration portal for NVR and hDVR servers that enables you to configure your systems and manage permissions from the Internet.
  - DIGIOP™ Control allows you to easily manage your single- or multi-site system. DIGIOP™ Control includes: add and configure cameras, set user rights, establish global and local level permissions for systems, cameras, and data streams.
- **DIGIOP™ Connect**
  - Provides a unified dashboard that displays both video and data intelligence on a single admin portal, enabling remote management of both single-site and multi-site systems.
  - Provides search tools including thumbnail search, timeline search, replay search, digital zoom, and tours, allowing you to quickly locate, save and export video and data.
- **DIGIOP™ Data**
  - DIGIOP™ Data is a data management software that integrates external data with video recorded by DIGIOP™ Core. This information can be displayed and retrieved with DIGIOP™ Connect.
  - DIGIOP™ Data can integrate video with retail Point-of-Sale (POS), with school Time & Attendance, with healthcare Electronic Access Control (EAC), etc. to expand the potential of your system.



## SECTION 1: SYSTEM OVERVIEW



### Local and Hosted-Enterprise Management

The DIGIOP ELEMENTS™ server can be managed either locally or managed by DIGIOP™. With a locally managed NVR or hDVR server, the configuration settings are retained on the server. In a hosted enterprise environment, DIGIOP™ manages the servers and save the server configuration settings at DIGIOP™. For hosted enterprise management, the NVR and hDVR servers must be accessible through the Internet.

The selection of using either local or hosted enterprise management is made through the *Enterprise Configuration Application* in the Windows Start menu.

## 1.1 DIGIOP™ Control and NVRs and hDVR

This document includes a user interface description of the DIGIOP™ Control admin portal. Locally, DIGIOP™ Control operates in one of two modes: Kiosk mode for hDVRs, or Service mode for NVRs:

- **Kiosk modes** - Kiosk mode provides a local user interface and administration of the cameras and settings on the hDVR. It is used to schedule recording modes, control PTZ cameras, create associations between sensors (alarm inputs) and control relays (alarm outputs) with cameras, and see and hear video and audio. Kiosk mode allows remote access to the hDVR with DIGIOP™ Control for management of IP cameras. DIGIOP™ Connect provides a remote view of live and recorded video and data streams.
- **Service mode** - In Service Mode, the video and data software runs as a service on the server. DIGIOP Control is used to manage IP cameras, user accounts and data streams, and create groups and tours for monitoring surveillance cameras and data. DIGIOP™ Control can be used concurrently with DIGIOP™ Connect, which provides a remote view of live and recorded video and data streams.



## SECTION 2

# Using DIGIOP ELEMENTS™ Software

DIGIOP ELEMENTS™ consists of DIGIOP™ Core, DIGIOP™ Data, and DIGIOP™ Control software and comes installed on hDVRs and NVRs. This includes the basic application to view live and archived video, configure users, etc.

## 2.1 NVR Startup

The initial power-on and initialization of an NVR system is complete when the Windows 7 Professional desktop display similar to the following, appears. No log on is required. The appearance of the Windows 7 desktop without the Kiosk mode display window indicates that the server is operating in Service mode.



After the initialization of the server software is complete, you can log in to the system either locally or remotely through the DIGIOP™ Control admin portal.

### 2.1.1 NVR Service mode desktop options

When the server is operating in service mode, you can perform any of the following:

- Open DIGIOP™ Viewer to search for, watch, and backup recorded video.
- Open DIGIOP™ Control on the server desktop (see the procedure later in this section).

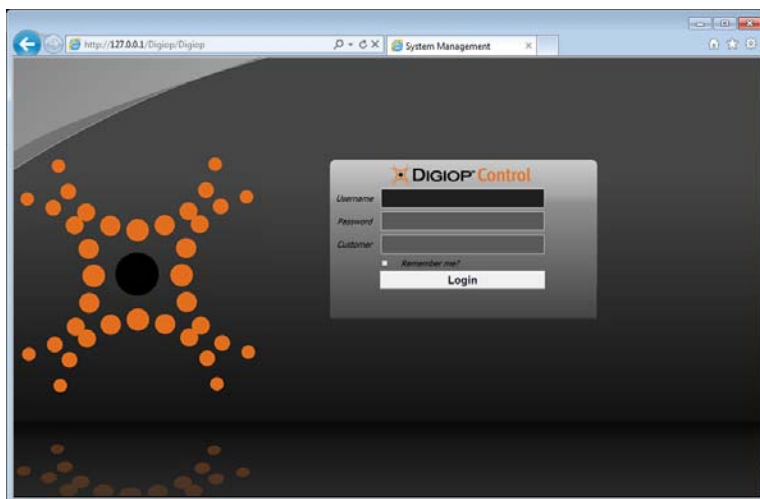


## SECTION 2: USING DIGIOP ELEMENTS™ SOFTWARE

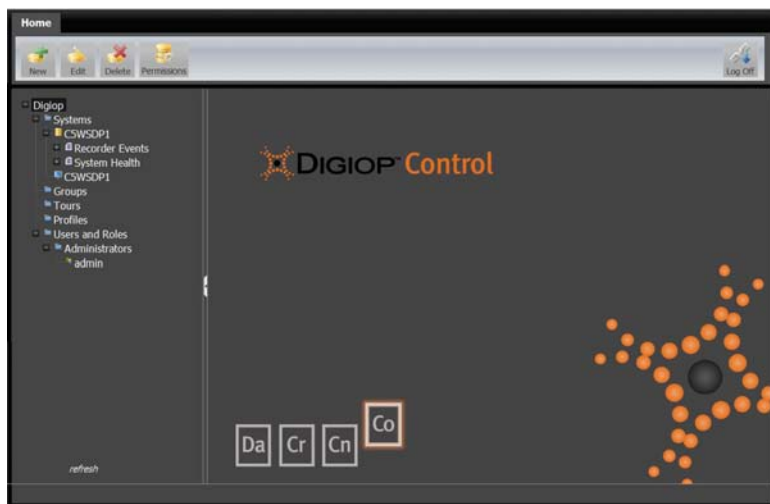
- View or add additional licenses to the system.
- All Windows 7 desktop options with Administrator privileges, including power off or restart of the server..

## 2.2 Open DIGIOP™ Control

1. To open DIGIOP™ Control:
  - a. From the server desktop: Start the Microsoft® Internet Explorer® (IE) browser. The URL defaults to localhost, or IP address 127.0.0.1.
  - b. From a local computer: DIGIOP™ Control can also accessed from any computer that can connect to the NVR across a network. Open an internet browser (IE, Mozilla® Firefox®, or Google Chrome) Use the URL:  [<IP Address>/digiop](http://<IP Address>/digiop) where the IP address can be the fixed IP address of the NVR or the DNS address.
  - c. For DIGIOP™ hosted servers: Open an internet browser (IE, Mozilla® Firefox®, or Google Chrome) Use the URL: [elements.digiop.com](http://elements.digiop.com)



2. Enter your **Username**, **Password**, and **Customer** name:
  - The default **Username** and **Password** are **admin** and **admin**.
  - The **Customer** name for desktop and local computer logins is **digiop**. For DIGIOP™ hosted systems, use your assigned customer name. To obtain a customer name, go to <http://elements.digiop.com>, click the link **New Customer?**, then follow the instructions to apply for one. You should receive your Customer name within 1 day.



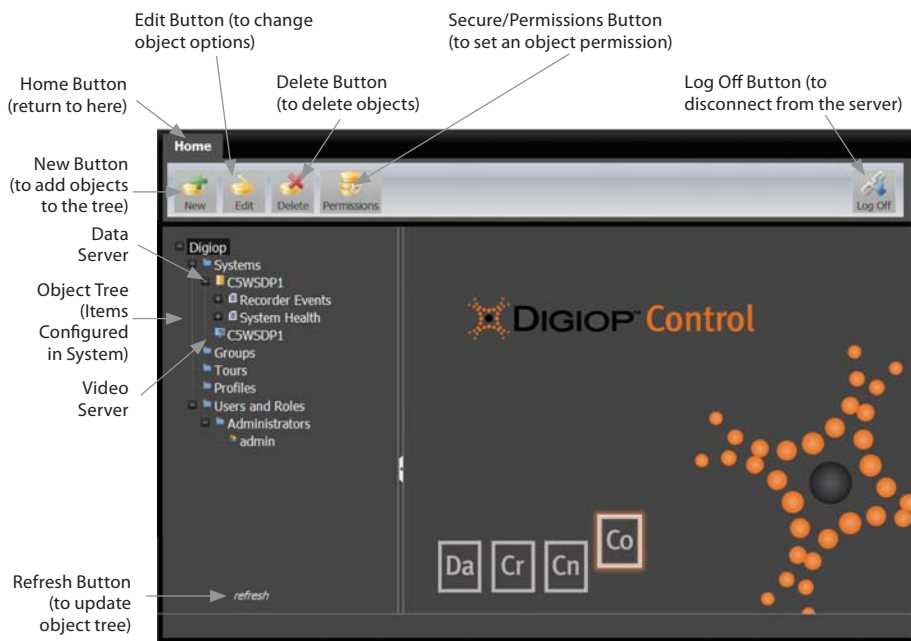


### SECTION 3

## Using DIGIOP™ Control

The DIGIOP™ Control interface can be opened either through a web browser that can connect to the NVR or hDVR (across a LAN or the Internet), or from the NVR/hDVR desktop (see above). DIGIOP™ Control allows you to manage your video, data, and user information of a single- or multi-site system. Control includes: add and configure cameras, set user rights, establish global and local level permissions for systems, cameras, and data streams.

### 3.1 DIGIOP™ Control Main Window



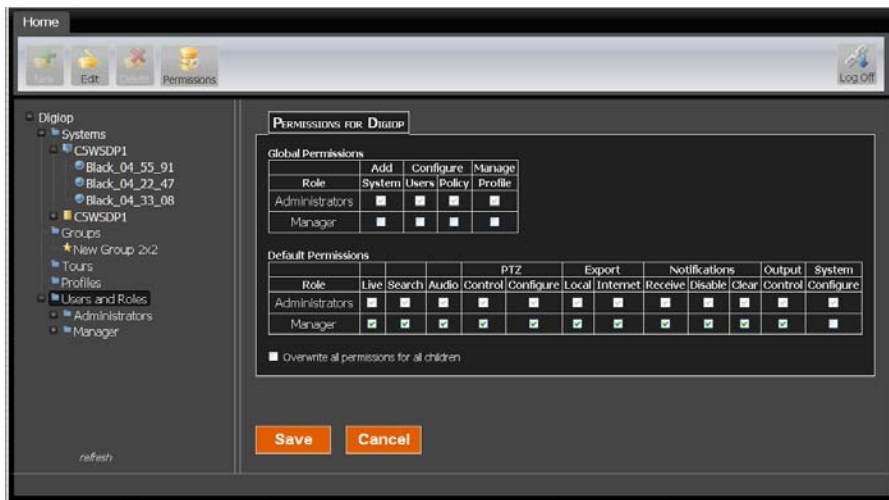
**NOTE:** In this example, C5WSDP1 is the system hostname

### 3.2 User permissions

All DIGIOP ELEMENTS™ users are assigned a Role that includes a set of permissions, i.e., what level of access they have to the server. Initially, only the **admin** user with the Administrator Role (all permissions enabled) is configured in the system. **admin** can create other roles and users. See **Create Roles** later in this section.



In the following example, the Role “Manager” was created by creating a new Role in the Users and Roles component.



## GLOBAL PERMISSIONS

Global Permissions (see above screen) allows the administrator to determine what roles can add, configure, and manage systems and profiles. Permissions set in the top level determine what access Roles have at lower levels of the tree. These can be applied to individual devices. Additionally, individual devices can further restrictions.

The Permissions for DIGIOP menu above can be opened in two way (by admin or someone with permission to do so):

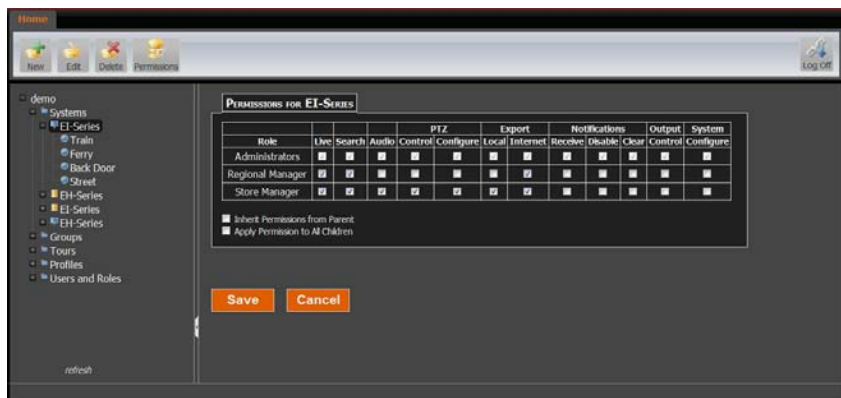
- By clicking (highlighting) **Users and Roles**, then clicking the **Permissions** icon at the top of the window.
- By clicking **Digiop** (at the top of the tree), then **Permissions** icon at the top of the window.

## SYSTEM-LEVEL PERMISSIONS

System level permissions allow Roles to be applied to selected systems. Use this feature apply certain roles to systems not inheriting Global permissions.



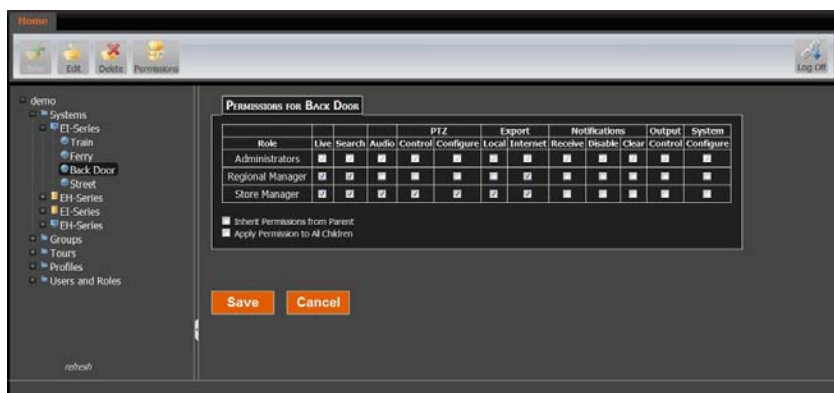
## SECTION 3: USING DIGIOP™ CONTROL



The System-level permissions for DIGIOP menu above can be opened by clicking (highlighting) a system in the tree (here, **EI-Series**), then clicking the **Permissions** icon at the top of the window.

### DEVICE-LEVEL PERMISSIONS

This level of permissions allows a role to be assigned to an individual device or stream not only at a system or global level.




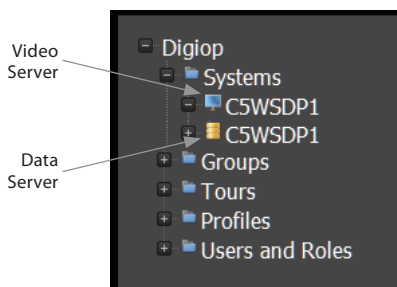
The Device-level permissions for DIGIOP menu above can be opened by clicking (highlighting) a device in the tree (here, **Back Door**), then clicking the **Permissions** icon at the top of the window.



### 3.3 Add IP cameras to the NVR/hDVR

The DigiOP™ server will automatically discover the IP cameras it can connect to. To add these IP cameras to the NVR/hDVR:

1. Find the Systems entry in the list in the left frame of the home page, then click the  icon to open the Systems list. Inside the Systems list are two entries for the NVR/hDVR you connected to. The one prefaced with the blue “display” icon identifies the video server. The one below it with the yellow “barrel” icon identifies the data server.



2. In the Systems list, click the hostname of the video server, then click the **New** button at the top of the Home page. The Add Camera pane will open in the right frame. The hostname for the NVR in this example is C5WSDP1.




3. In the Add a Camera frame, find the IP address of the camera you want to add, then click the associated **select** action link. The camera will be added to the system and automatically assigned to a camera channel in the NVR or hDVR.

After a camera is added to the NVR/hDVR, the entry for the IP address under Channel Number shows the channel the camera is assigned to.



## SECTION 3: USING DIGIOP™ CONTROL

4. Repeat this procedure to add additional cameras to DIGIOP™ Control.
5. In the left frame of the home window, open the Systems list, then open the click the  icon in front of the video server. Entries for the cameras you added will appear in the list.

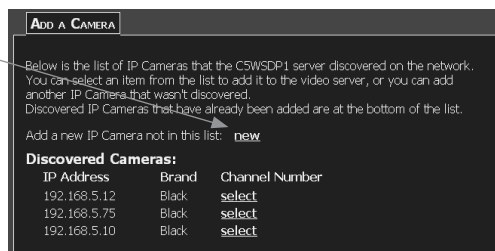


### 3.4 Add an IP camera not discovered

To add an IP camera to DIGIOP™ Control that was not automatically discovered on the network:

1. Click the **new** action link in the Add a Camera pane.

new Camera  
Action Link



2. In the Camera settings list, select the brand from the drop-down list, then enter the remaining settings as needed.



**CAMERA**

Brand: ACT1

Name:

IP Address:

Video Port: 80

HTTP Port: 80

Username:

Password:

Confirm Password:

Additional camera configuration items will be available after the CSWSOP1 video server has been synced to the video recorder.

**Save** **Cancel**

3. Click **Save** to update the video server with the new IP camera.

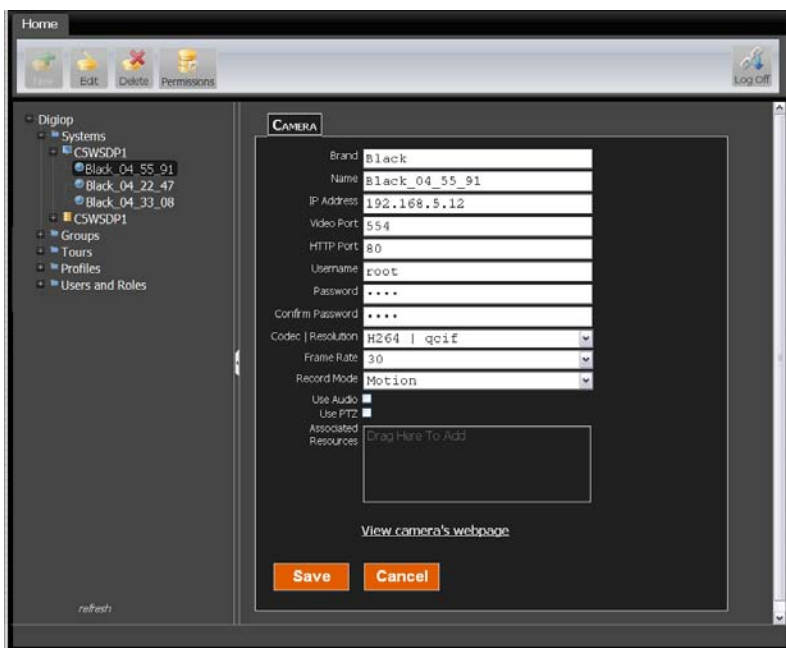
## 3.5 Edit camera settings

Camera settings, such as the Name, Codec, resolution, frame rate, record mode, etc. are edited within DIGIOP™ Control. Note that changing network settings here for an IP camera must also be performed within the camera setup.

1. In the list of cameras added to the video server, click the entry for the camera whose settings you want to edit, then click the **Edit** button at the top of the Home page.



## SECTION 3: USING DIGIOP™ CONTROL



2. In the settings list at the right, change the items as needed.
3. Click **Save** to update the video server.

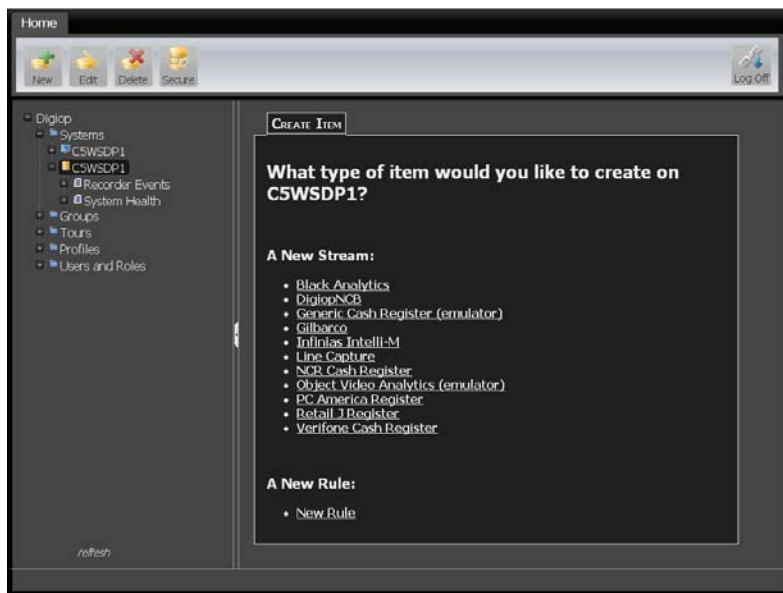
### 3.6 Add data server streams

The DigiOP™ Data Server feature for DigiOP™ Control integrates several back-office systems with the video and audio capture capabilities of the video server.

**NOTE** Refer to the appendix *Data Server Streams* in this document for more information about preset data stream options.

To add data server streams to DigiOP™ Control:

1. Open the Systems list, then click the hostname of the data server.
2. Click the **New** button at the top of the Home page. The Create Item pane will open in the right frame.



3. Click the **New Stream** data stream you want to add to the server. A properties window will open.
4. In the properties window for the data stream (see below for a Generic Cash Register (Emulator)), enter the appropriate parameters, then click **Save**.

**GENERIC CASH REGISTER (EMULATOR)**

Name:

NumberOfRegisters:

Frequency (ms):

Associated Resources:

Drag Here To Add



### 3.6.1 A New Rule

A rule is an action for a device that triggered. To setup a rule, click **New Rule** on the Create Item menu. For specific information about creating rules, refer to the appendix *Creating Rules*.

**RULE**

Name

**Run this rule on the following schedule:**

**When:**

**On These Devices:**

- ☐ Process Sensor
- ☐ Register 1
- ☐ Memory Sensor
- ☐ Drive D:
- ☐ Recorder Events
- ☐ Drive C:
- ☐ CPU Sensor
- ☐ Windows Event Log
- ☐ Register 1

**Execute These Actions:**

Create New Action:

To create a rule:

1. Enter a name for the rule in the Name field.
2. In the **Schedule** pull-down list, select the time when rule is run.
3. On the **When** pull-down list, select the condition on which the rule Action (see below) is executed.
4. Choose the Device on which to apply the rule.
5. In the **Action** pull-down list, select the action to perform when the device triggers.

**NOTE** See the appendix *Create Rule* for information on rule creation, Action configuration parameters and examples.



### 3.6.2 Data server Recorder Events

Recorder events display shows the occurrence of I/O events, Recording start/stop, and Recorder exit.

### 3.6.3 Data server System Health

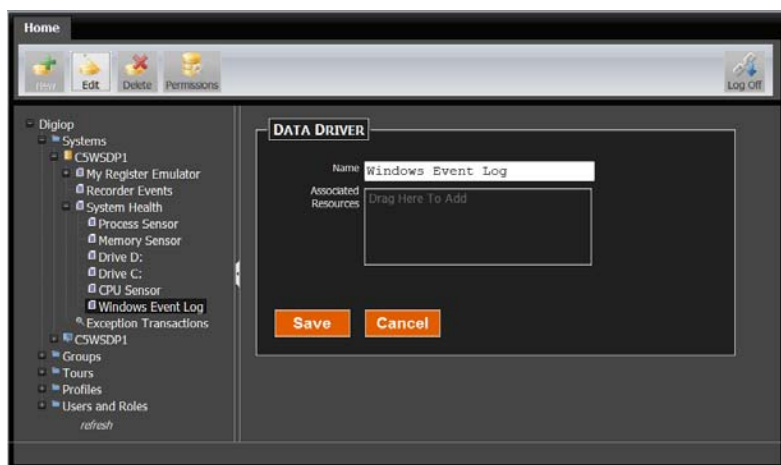
The data server System Health entries (data drivers) offer several system related reports that can be named and associated with other resources. Each report option can be edited, deleted, or restricted through permissions. System Health data drivers are viewed with DIGIOP™ Connect.

### 3.6.4 Exception Transactions

Exception Transactions are automatically generated custom queries. When a cash register is added, Exception Transactions reports Voids, Discounts, Returns, and No Sale events.

#### Fraudulent Exception Transactions

A fraudulent exception transaction is a custom query that utilizes an exception transaction and a occupancy analytic to determine if the transaction could possibly be fraudulent.



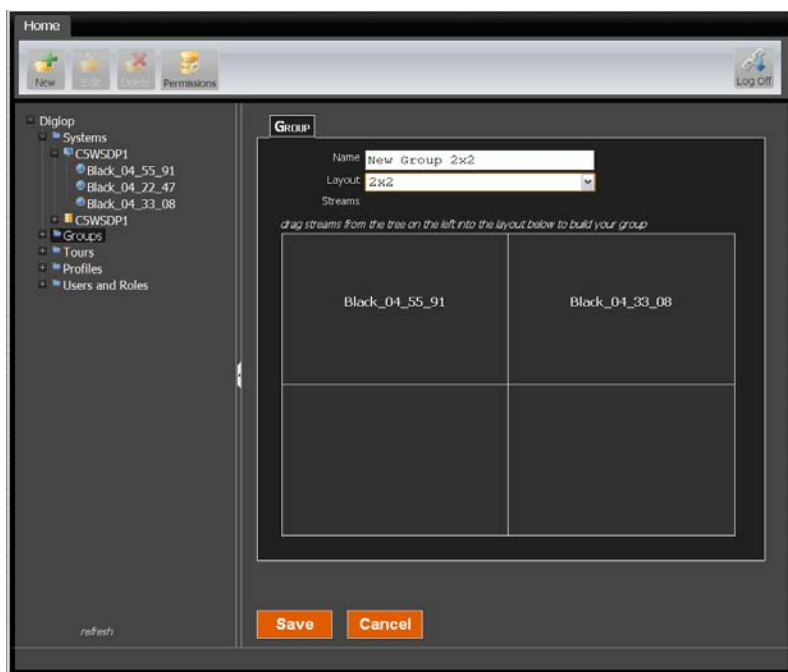
*Data Server System Health Data Drivers*



### 3.7 Create Group

A group is a selection of cameras and/or data streams that can be displayed as a unit with DIGIOP™ Connect. Groups can be displayed individually, with other groups in a Tour. To create a group:

1. Click the **Group** entry in the left frame of the Home page, then click the **New** button at the top of the window.



2. In the Group settings window, enter the name of the group in the **Name** field.
3. Open the **Layout** drop down list and select the preferred split-screen arrangement for the group. In the Example above, a 2x2 split-screen layout was selected.
4. Add a camera or data stream to the group by dragging the camera/data stream entry from the tree in the left frame and dropping it into a of the frame in the group layout display. Two cameras were added to the layout shown above.
5. Click **Save** to update DIGIOP™ Control, then click **Refresh** to update the screen information.



- Open the Groups list in the left frame by clicking the associated  icon. Verify that the group you created now appears in the list.

You can Edit/Delete the group by clicking the clicking the group name, then clicking the Edit/Delete buttons at the top of the window.

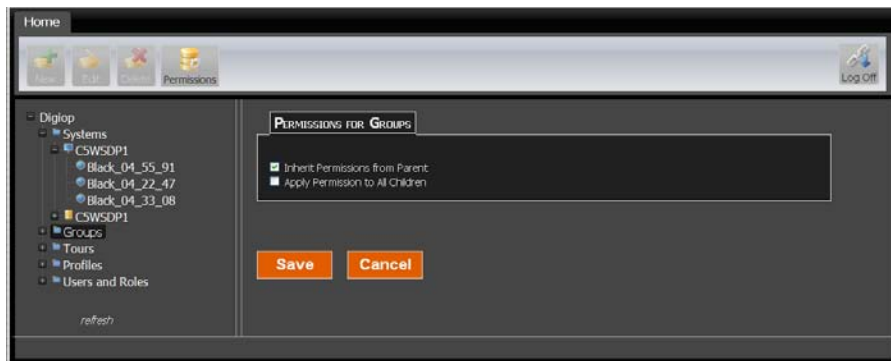
### 3.7.1 Group Permissions

To open the group permissions menu:

- Click the **Groups** link in the left frame, then click the **Permissions** icon at the top of the window.
- In the Permissions for Groups menu, select either option:

**Inherit Permissions from Parent** - Inherit the permissions of the device at the highest level in the tree.

**Apply Permissions to All Children** - Permissions set for a device at a higher level of the tree are applied to all devices below that level.



- Click **Save** to update DIGIOP™ Control.

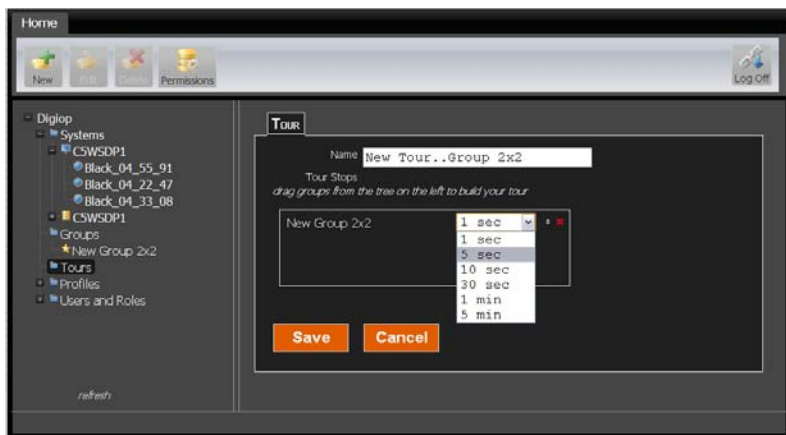
## 3.8 Create Tour

A Tour is a collection of groups that are displayed individually and sequentially with a pause time (dwell) on each group. The dwell time for each group display can be either 1 sec, 5 sec., 10 sec., 30 sec., 1 min., or 5 min.

- Click the **Tour** entry in the left frame of the Home page, then click the **New** button at the top of the window.



## SECTION 3: USING DIGIOP™ CONTROL



1. In the Tour settings window, enter the name of the tour in the **Name** field.
2. Add a group to the tour by dragging an entry in the Groups list and dropping it into a box in the Tour settings window.
3. Click the down arrow to the right of the group name, then select the dwell time for the group.
4. Repeat the two steps above to add additional groups to the tour.
5. Click **Save** to update DIGIOP™ Control.

You can Edit/Delete the tour by clicking the clicking the tour name, then clicking the Edit/Delete buttons at the top of the window.

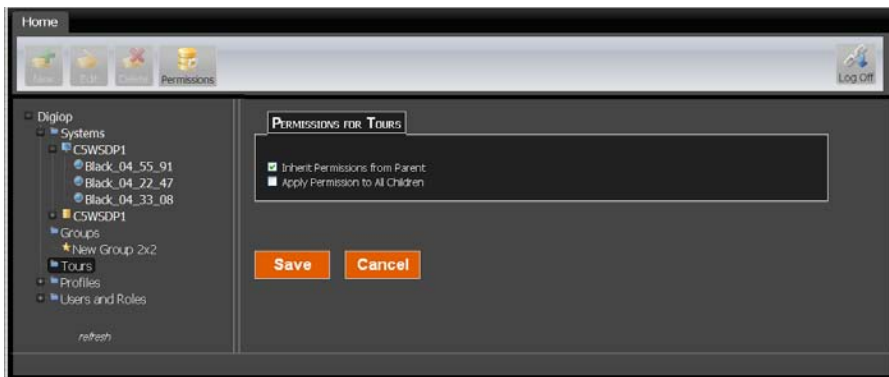
### 3.8.1 Tours Permissions

To open the Tours permissions menu:

1. Click the **Tours** link in the Home page Permissions list.
2. In the Permissions for Tours menu, select either option:

**Inherit Permissions from Parent** - Inherit the permissions of the device at the highest level in the tree.

**Apply Permissions to All Children** - Permissions set for a device at a higher level of the tree are applied to all devices below that level.

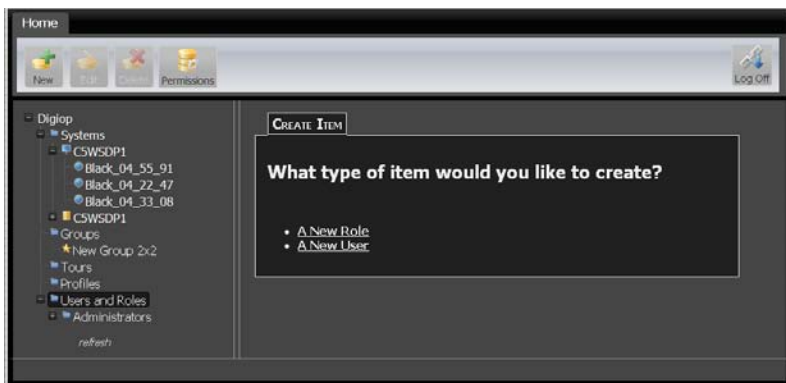


- Click **Save** to update DIGIOP™ Control.

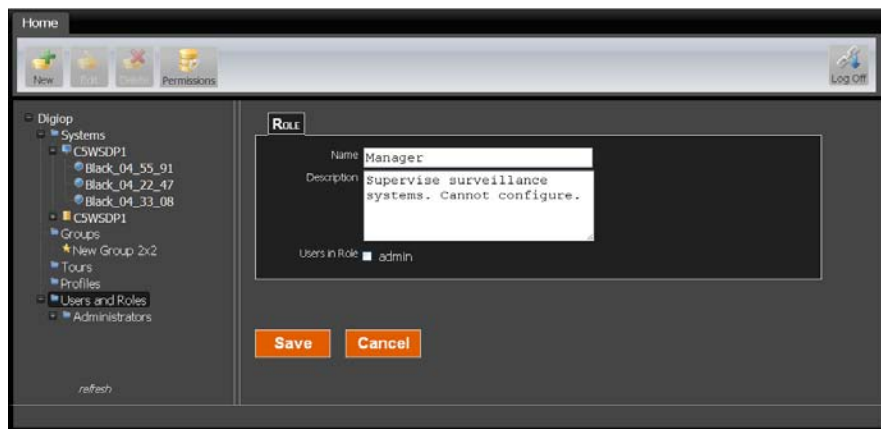
## 3.9 Create Role

Create Role is used to create classes of users who manage or view the system. Each role as has a specific set of permissions. User identities are each assigned some role when they are created. Initially, only an Administrator Role is established in the system. To create a Role:

- Click the **Users and Roles** entry in the left frame of the Home page, then click the **New** button at the top of the window.



- In the Create Item frame, click **A New Role**.



3. In the Role menu, enter the name of the Role in the **Name** field.
4. Enter a description of the role in the space provided.
5. Select the users who will be given the permissions of this role.
6. Click **Save** to update DIGIOP™ Control.

### 3.9.1 Set Permissions for each Role

After a role is created, or if a Role needs to be modified, open the Permissions window to set the permissions assigned to the Role: :

1. Click the **DIGIOP** entry at the top of the tree in the left frame, then click the **Permissions** icon at the top of the window.
2. In the **Permissions for Digiop** frame, assign permissions to each role by clicking the checkbox associated with the function of the role.



**PERMISSIONS FOR DigiOP**

**Global Permissions**

Role	Add	Configure	Manage
Administrators	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Manager	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Default Permissions**

Role	Live	Search	Audio	Control	PTZ	Export	Notifications	Output	System
Administrators	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Manager	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

☐ Overwrite all permissions for all children

**Save** **Cancel**

- Click **Save** to update DIGIOP™ Control.

## 3.10 Create User

Create User is used to create a user Username and Password, and assign a Role (permissions) to the user. To create a User:

- Click the **Users and Roles** entry in the left frame of the Home page, then click the **New** button at the top of the window.

**CREATE ITEM**

What type of item would you like to create?

- A New Role
- A New User

- In the Create Item frame, click **A New User**.



## SECTION 3: USING DIGIOP™ CONTROL

The screenshot shows the DigiOP Control web interface. On the left is a navigation tree with categories like Systems, Groups, Tours, Profiles, Users and Roles, and Administrators. The 'Users and Roles' section is expanded, showing 'admin' and 'Manager'. The main area displays the 'USER' settings form for a user named 'Hank'. The form includes fields for Name, Email, Password, Confirm Password, Password Question, Password Answer, and a Comment box. Below the form are checkboxes for 'Administrators' and 'Manager' (which is checked). At the bottom are 'Save' and 'Cancel' buttons. A 'refresh' link is visible at the bottom left of the interface.

Home

New Edit Create Permissions Log Off

DigiOP

- Systems
  - CSWSDP1
    - Black\_04\_55\_91
    - Black\_04\_33\_08
  - CSWSDP1
  - CSWSDP1
  - CSWSDP1
  - CSWSDP1
- Groups
  - New Group 2x2
- Tours
- Profiles
- Users and Roles
  - Administrators
    - admin
    - Manager

refresh

USER

Name: Hank

Email: Hank@MyTown.org

Password: \*\*\*\*\*

Confirm Password: \*\*\*\*\*

Password Question: What are 2 notes

Password Answer: not not

Comment:

Roles: ☐ Administrators ☒ Manager  
*(leave the password fields blank if you do not want to change them)*

Save Cancel

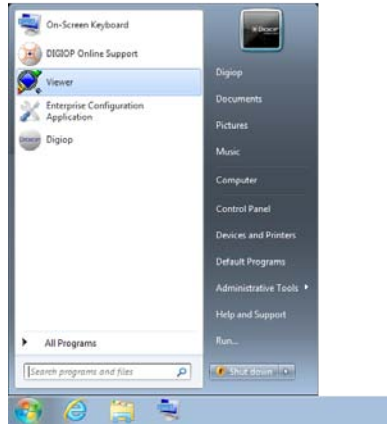
3. In the User settings window, enter:  
Name  
Email address  
Password and Confirm Password  
Security Question and Answer  
Comments if needed.
4. Click the **Role** to assign to the user.
5. Click **Save** to update DIGIOP™ Control.



## SECTION 4

# Viewer

Viewer is a video search and backup utility that resides on the NVR or hDVR server. It is opened through the start menu.





## SECTION 4: USING VIEWER

### NOTE

*By default, Viewer opens at the end of the current recorded files. No new recording occurs while the Search is running.*

**Table 1. Search preferences**

Item	Name	Description
1	Current Date & Time	Displays the PC date and time
2	Record calendar	Use the calendar to find recorded video on the desired search date. Use the Prev(ious) or Next links to move the months forward or backward in time. Use the Up/Down arrows to adjust the Year and Month. Date codes: Pink – recordings available on that date Yellow – currently selected date Grey – no recordings on that date.
3	Time Line (Hour/Min)	Displays the current system time. Clicking anywhere on the time line causes the Scan Bar to jump to that position/time. Use the Hour and Minute up/down arrows to locate known records. This option is synchronized with the Scan Bar so any change to the Scan Bar position will be reflected here.
4	Playback Controls	Play, Stop, Pause, FWD, Step Forward, Step Backwards. See the section "Playback Controls" in this guide for more information about these controls.
5	Screen division display	Switches from 1, 4, 9, or 16 images. Individual images can be removed from the split screen by clicking the camera button (left of the graphical record log). The selected Screen Mode is highlighted.
6	Tools (Search)	Provides access to tools for doing searches, which include Image Processing, Smart Search, Hour Search, Search, Configuration, POS, and Image. For information about each of these tools, see the section "Search Tools" in this guide.
7	Playback speed	Lets you choose forward or playback at speeds of 1/8X, 1/4X, 1/2X, 1X, 2X, 4X, and 8X real-time speed. To adjust the playback speed, either drag the slide control or click on the slide control bar. The speed is displayed in the playback window.
8	Print, Zoom, De-interlace, Image/Video Backup Controls	Print – Prints the image
		Image Zoom – Magnifies the image in 48 incremental steps. Right-click with the mouse. When you place the mouse over the image, the cursor changes to the +/- magnifying glass. Clicking the left mouse button zooms out to a 1:1 ratio. By moving the mouse to different areas of the image, you can zoom in on parts on the image that you need to look at in more detail. This means that the zoom does not need to be centralized in the middle of the screen to work. See the section "Zoom" in this guide to see a zoomed image.
		Image/Video Backup – Lets you access several options for copying images (other than HOUR BACKUP), including: Video Backup (DSF format and viewer); Still Image Backup; Standard format (MPEG format)
		Interlace/Deinterlace (4CIF) – (Only applies to the S-Class systems when processing 4CIF recorded data) When printing the interlaced fields 4CIF images where the source was a dynamic (moving) image, the DVR captures "Even" and "Odd" fields to create the frame. Greater clarity may be gained by viewing the images separately. Option normally used while processing images for printout. See the section "Viewing Interlaced/Deinterlaced images" in this guide for more information about this option.
9	Graphical record log	Displays a 24-hour time period for the time and date selected. Double click to zoom in on the time line. The time zooms in from 24 hours to single hours. By double clicking the time line, the time line zooms in for searches in smaller time increments. Different colors represent different recording modes: pink=continuous; blue=motion; red=sensor. See the section "Manipulating the Graphical Record Log" in this guide for more information about how to use the timeline features.
10	Cameras selector and scroll bar	Displays camera images in multi-screen divisions of 1, 4, 9, and 16 cameras. Cameras not selected are not visible. For single images, use the camera selection buttons to move the displayed image from one camera to the next. For multi-screen divisions, use the camera selection buttons to select or de-select each camera from the search/display. The scroll bar can be used to access the other cameras not shown.



Item	Name	Description
11	Scan bar (cursor)	Lets you slide a scan bar along the time line and quickly select and view video. A preview pane displays the images as soon as the files are accessed. By double clicking the time line, the time line zooms in for searches in smaller time increments.

## SEARCHING FOR RECORDED VIDEO

The Graphical Record Log is used to search for the video record you need. To search for a video record:

1. Open the **Search** dialogue.
2. Select a camera whose video you want to search. The selected camera is outlined in yellow in the viewer.
3. Look at the calendar [1] to see when recorded video for the camera is available. Dates in pink indicate video was recorded on that day.

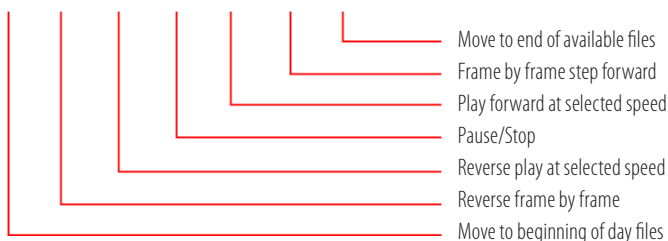


4. Select an approximate date from the calendar of the video event you want to see. The video begins to run in the viewer.

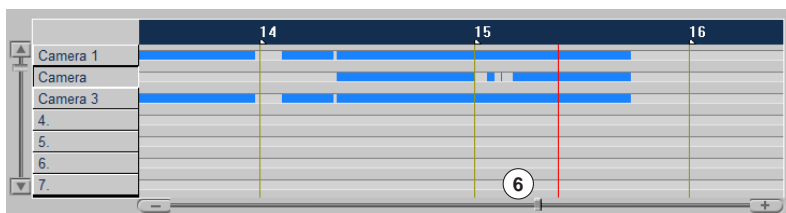


## SECTION 4: USING VIEWER

5. The timeline is first displayed in 24-hour intervals. Click anywhere on the timeline to select an hour [2]. You can also select the date from the calendar [1, above] and change the hour or minute with the up and down arrows on the Hour/Min clock [3].
6. Use the video controls [4] to control the video playback. Be prepared to stop and rewind the video, fast forward, etc., to locate the desired segment. Speed up or slow down the playback speed of the video [5] using the slide control. The maximum playback speed is "8X."



7. Double click once on the dark bar at the top of the time line to zoom in to a shorter time interval. The time zooms in (expands) from 24 hours to approximately six hours, with the selected time roughly in the center of the time line.
8. Slide the vertical scan bar along the time line to another time. You can also move the slide control below the time line [6] to the right or left to change the time.



9. Double click a second time to zoom to a shorter time interval. The time line now shows slightly more than three hours. (The next time you double click, the time line returns to the 24-hour time period.)
10. When you locate the desired section of video, you can zoom in to see more details. Here is an example of how the video can look at maximum zoom. Zoom magnifies the image in 48 incremental steps.



No Zoom



Maximum Zoom

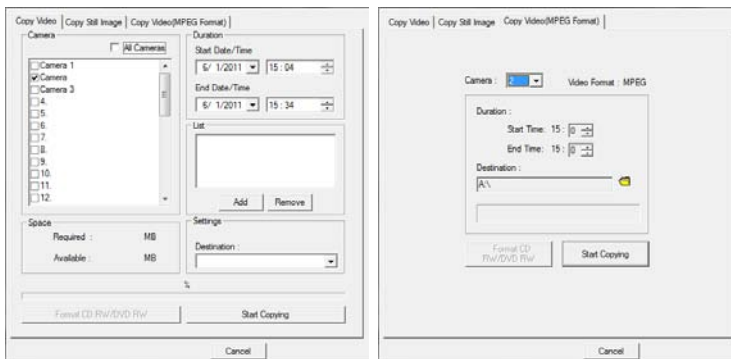
## COPYING VIDEO

The Copy Video feature permits backing up the video from multiple cameras across a time frame (Copy Video) or saving the video from a single camera to MJPEG format (Copy Video (MJPEG)).

- From the Search window, click **Video Backup**. The Copy Video to CD window appears.



- Click the **Copy Video** (or **Copy Video (MJPEG)**) or tab.



For the Copy Video feature:

- Place a check mark beside the camera(s) whose video you are copying.



## SECTION 4: USING VIEWER

4. Select the Start Date/Time and the End Date/Time. Use the drop arrows to open the calendar.
5. Click the **Add** button to add this selection to the list of video segment times to copy.
6. Repeat Steps 2 and 3 for other selections. Each time, click **Add**.
7. In the Destination field browse to identify the location to where you want to copy your files. Your files must be copied to a CD/DVD, removable drive, or network device. The system will scan the selected drive and display the available free space. From the backup period list, select one or more periods to back up on the media you have available. The file size of the selected cameras periods will be displayed under the Space information.
8. (Optional) If the CD requires formatting, click the **Format CD RW/DVD RW** option.
9. Click **Start Copying**. The file copied will be in an encrypted .DSF format.

### COPYING STILL IMAGES (BMP OR JPG)

1. From the Search window, click **Video Backup**.
2. Select the **Copy Still Image** tab.



3. Pause the video playback.
4. In the dropdown list, select the camera you want to use to capture a still image.
5. Select the format in which you want the image, BMP or JPG (JPEG).



6. In the Destination field browse to identify the location to where you want to copy the file. The file must be copied to a CD/DVD, removable drive, or network device.
7. From the number of frames selector, select how many frames to save (1-100) using the up and down arrows.
8. If the CD requires formatting, click the **Format CD** option.
9. Click **Start Copying** to copy the file to the selected destination.

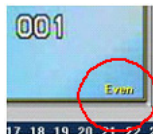
## VIEWING INTERLACED/DEINTERLACED IMAGES

The Interlace/Deinterlace feature can be used to enhance video images. It combines an odd video scan with an adjacent even video scan to produce a deinterlaced image. It is normally used when processing images for printing.

1. Click **Deinterlace** on the Search window to display the interlaced frames. The default image is the interlaced image. The Deinterlace option lets you view individual even and odd frames.



2. Click the **Deinterlace** button once to access the even fields.



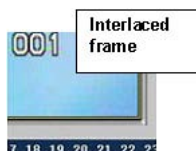
3. Click it again to access the odd fields.



4. Click it again to return to the default interlaced image. The selected field can be viewed during playback or while an image is still.



## SECTION 4: USING VIEWER



### NOTE

4CIF images are interlaced. When printing an image where the source was a dynamic (moving) image, the system captures "Even" and "Odd" fields to create the frame. Greater clarity can sometimes be gained by viewing these fields separately.



Interlaced  
fast moving  
image (zoom)



Odd field of  
the same fast  
moving image  
(zoom)

## SEARCH > TOOLS MENU

The Search option provides its own individual set of Tools for enhancing images (Image Post Processing), doing Sensor Event searches, and other functions.

1. To access this set of tools, from the Search window, click the **TOOLS** button. This opens the menu shown here.
2. Select a tool.

Search Tools are described in the following sections.

## USING THE SMART SEARCH TOOL

Smart Search (also called "Museum Search") lets you analyze video for movement after it has been recorded. Beginning with a video recording, you draw motion-sensitive areas directly onto the image. Any activity occurring within these areas creates an event that the software then logs to the Smart Search list.

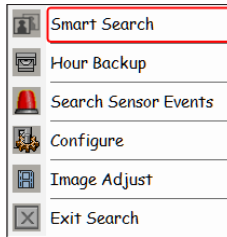
For example, you might want to know the specific time(s) that cars entered and exited a parking lot, but you did not set up motion sensitive areas to detect these as they occurred. With Smart Search, you can return to the video and perform a post-video analysis of it. Smart Search logs any motion found in the areas you setup up for motion detection.

## RUNNING A SMART SEARCH

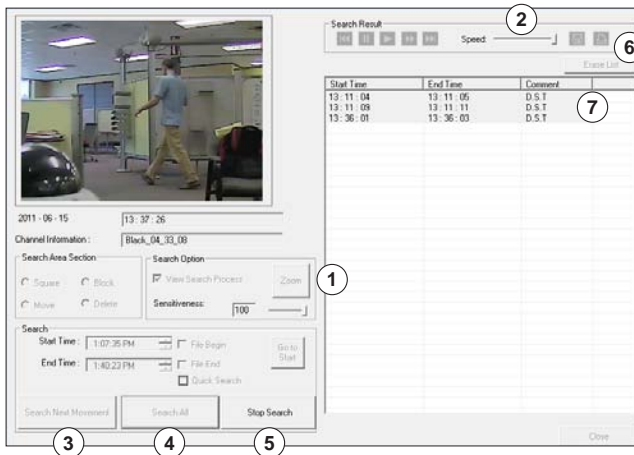
1. From the main DIGIOP™ window, select **TOOLS > Search**. The main Search window opens.
2. Click on a camera image you want to analyze. The border of the selected camera is highlighted.



3. Select the date/time to start the search of video recorded on this camera.
4. From the Search window, click **TOOLS**. The Search Tools menu opens.
5. Click **Smart Search** from this menu.



6. The Smart Search window appears. This contains the camera video image plus the camera name (Channel Information) and the date and time of the search.



**Table 2. Smart Search options**

Item	Name	Description
1	Zoom	Only impacts playback. (1) Choose a record. (2) Click <b>Zoom</b> . (3) Use the mouse scroll wheel to enlarge an area (e.g., a square or block). (4) Click <b>Play</b> and the video plays back at that zoom magnification. At the end of the playback or when a different video record is selected from the Smart Search list, the zoom magnification is retained until the Zoom is clicked again and the mouse wheel is used. To disable Zoom, click the <b>Go to start</b> playback control.
2	Speed slide control	Only impacts playback. The playback speed varies depending on the frame rate at which the recording was made. At the lowest setting, the video plays back at about 1 fps.
3	Search Next Movement	Searches the video from the selected camera for motion events.
4	Search All	Erases the current search event list and starts the search from the beginning again. The search can be stopped but not paused. Events are listed by start/end times.
5	Stop Search	Terminates the search completely (no pause option is available).
6	Print	Prints the first image of the search event.
	Save	Launches a folder browser where you can select the destination folder. A folder and file are created as either a .BMP or .JPG. The folder/file format is: Folder and file – 20060118-071746.079-01. The name format is:YYYYMMDD – HHMMSS.RRR – Cam# (where RRR is a 1/1000 second reference number).
7	Erase List	The Erase List button erases the current search event list.

**NOTE**

*Initially, the data area on the right is empty until you run a search. In this example, the Smart Search was already run so some information is already shown.*

7. In the Search field, enter one of these options:
  - Enter the **Start Time** and **End Time** or use the up and down arrows to select the time you want to run the Smart Search.
  - OR**
  - Check the File Begin and **File End** checkboxes to match the start and end times to the available file content.

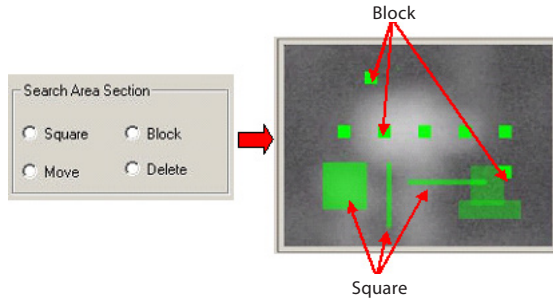
**NOTE**

*By default, the system opens with the Start Time set to the beginning of the first recording for that camera on the day selected (initially, this is the same as the "File Begin" time). The End Time is the time the file ends (initially, this is the same as "File End" time).*

8. Click **Go to Start** to see where the video begins.
9. Adjust the Start Time and End Time as necessary to locate the desired video.
10. Place a check mark in the **Search Area Section** to place a Block or a Square to define the search regions:
  - **Block** — Click on the desired location on the image to add a fixed-size square. You can add up to 20 horizontal and 15 vertical blocks to the image.

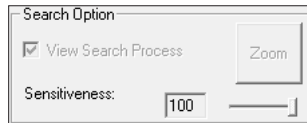


- **Square** —Click on the desired location on the image and then drag the mouse to define a “square” region.



**NOTE** Multiple blocks and squares can be added to a single image to create the motion sensitive regions you want. Blocks and squares may overlap.

11. Check Move to move blocks and squares to new locations. You can also Delete them.
12. Place a check mark in View Search Process to view all video, not just the images where movement is detected.



**NOTE** When this option is unchecked, the only images that are previewed are those where movement is detected. In this case, if no event is found, the image does not change.

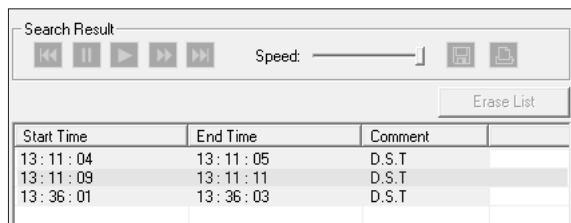
13. In the Search Option frame, adjust the Sensitiveness slide control for the percent of movement required to trigger an event. The number of events appearing on the event log reflects the sensitivity of the regions, i.e., 100% sensitivity generates more events.
  - 0% — Not sensitive to movement
  - 100% — Very sensitive to any changes in the defined regions.
14. If you would like to speed up the search process, check the Quick Search option. Searches may be done up to 20% faster using this option.

**NOTE** During testing, a 10-minute recording was completed approximately 20% faster with Quick Search. Search times typically take 60 seconds for 10 minutes of video. The Quick Search only reviews the “index” images and ignores the other images. In a relatively motionless scene, this option could save considerable search time. If the Quick Search option is not selected, the search feature reviews every image recorded.



## SECTION 4: USING VIEWER

15. Begin the search by clicking **Search Next Movement**. The search pauses at the first event (i.e., movement is detected inside a defined sensitive region). Each event detected in this way appears in the list with a start and stop time.



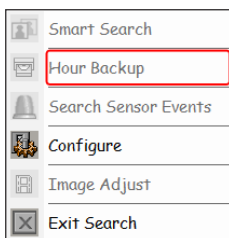
16. Click **Search Next Movement** again to move to the next search.
17. Continue to click **Search Next Movement** until the search is complete. You can also select **Search All**, which erases the current search event list and re-starts the search. A search can be stopped, but not paused.
18. Play the events in the list by highlighting an event and clicking the **Playback** control. Other Search Controls are described in Table 15.

## SAVING .DSF FILES EACH HOUR WITH THE HOUR BACKUP TOOL

This option saves .DSF files to backup storage media in 1-hour increments.

**NOTE** .DSF files are encrypted.

1. Click **Search > Tools > Hour Backup**. The Backup window opens.



2. Click the **Select Backup Date** drop-down and highlight a date to back up.



Select Backup Date : ☐ Automatic Playback from CD

Jun / 1 / 2011 Wed

Close

Save

Camera Number:	Hour:
01 Camera	14:00D - 14:59D
02 Camera	15:00D - 15:59D
03 Camera	16:00D - 16:59D

Select root folder to copy Viewer

Format DVD-RAM

Format DVD RW/CD RW

Selected file size : 0 KB

Target free space : 0 KB

Backup Path :

- Select a camera from the Camera Number list. Press and hold the Ctrl key to select multiple cameras.
- Select an hour/file from the Hour list or press and hold the Ctrl key to select multiple hours/files.

**NOTE** The total estimated storage requirement for the selected files is listed under Selected file size.

- Select the Backup Path to save the file to by clicking the **Open Folder Browser** icon.
- (Optional) If saving to a CD/DVD, use the Format DVD RAM or Format CD buttons.

**NOTE** The available storage capacity of the selected path is listed under Target free space.

- Click **Save** to save the files and a .DSF viewer to the specified directory.

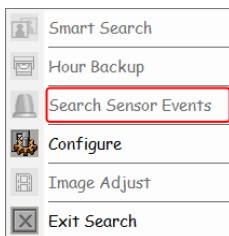
## SEARCHING FOR EVENTS WITH THE SENSOR EVENTS TOOL

The Search Sensor Events search tool produces a list of all sensor events for the selected camera. You can then print snapshots of these events to use as needed.

- From Search Tools menu, select **Search Sensor Events**.



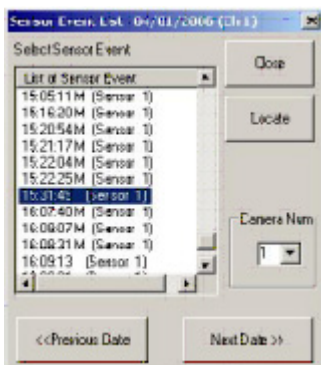
## SECTION 4: USING VIEWER



### NOTE

*If you are viewing a multi-division screen when you search for these events, all of the camera views are synchronized (or updated to closely match) the date/time of the camera you are searching. The Graphical Time Line is also updated.*

2. In the Sensor Events List window, select a camera to search from the Camera Number list. The Sensor Event List for the selected camera (under Camera Num) appears. Events are shown by Time, Event Type, and Sensor number.
3. Highlight an event by selecting a time corresponding to the event occurrence. To review the Previous or Next Date, click the appropriate button. You are prompted if there is not a Previous or Next Date.



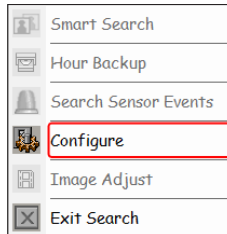
4. Click **Locate**.
5. Select the camera(s) for which images are to be printed.



## ADDING A PRINTER, ADJUSTING THE VOLUME, SEARCHING WITH THE CONFIGURE TOOL

The Search **Tools > Configure** option provides three features:

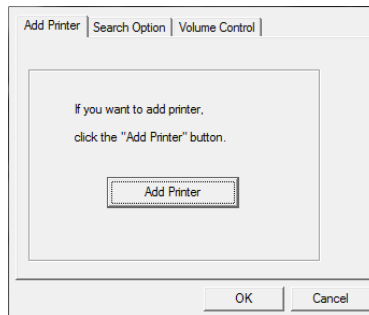
- Add Printer
- Search Option
- Volume Control



### Add Printer

Use this option to add Windows compatible printers. Ensure the number of installed printers is kept to a minimum as there is limited HDD space (disk space) available on the drive.

1. Click the **Add Printer** button, then follow the Windows menu system to add a printer of the DIGIOP™ system.



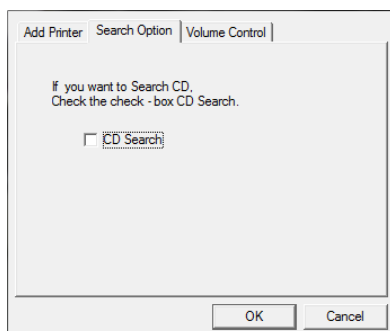
2. Once the Printer is added, go to the **TOOLS > Configure > System** tab and Backup the system.

### Search Option

This option searches a CD or DVD for .DSF video files and displays them on the timeline.

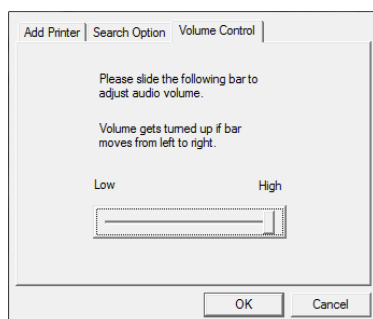


## SECTION 4: USING VIEWER



### Volume Control

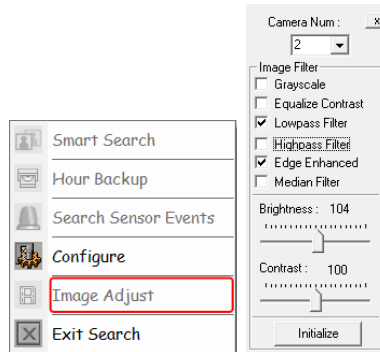
This control lets you adjust the playback audio volume by using a sliding volume control.



## USING THE IMAGE ADJUST TOOL DURING LIVE PLAYBACK

This Search Tools option adjusts the live playback of a video record. When you are done, the image reverts back to the default settings. This option does not let you save settings.

1. Click **Image Adjust**.



2. Select the camera to adjust from the Camera Num drop-down list.

**NOTE** *This option lets you adjust settings for one camera at a time.*

3. Select any one or more Image Filter options. The image will be adjusted according to the filters chosen.
4. Adjust the Brightness as required (real time preview update).
5. Adjust the Contrast as required (real time preview update).
6. Click **Play** to view the video record.
7. To restore (normalize) the image again, click Initialize to revert all settings back to their default values.



### APPENDIX A System Tray Programs

Several programs are found in the Windows System Tray at the bottom of the Main window. The Server System Tray and its components are identified below:

#### NOTE

*The tray icons may appear in a different order than this example.*



#### SHUTTING DOWN THE NETBACKUP AGENT

1. Backup the system to save any configuration or other changes. The Backup feature is accessed from **TOOLS > Configure > System**.
2. Right click on the icon **NetBackup Agent** in the System Tray.
3. From the pop-up menu, select **EXIT[X]**. You can now access Microsoft Windows Explorer.

#### DISCONNECTING USB DEVICES

1. To correctly disconnect any USB device, right-click on the **Safely Remove .. Media** icon.



2. In the pop-up window, select the device you want to remove.
3. Wait for the **Safe to remove....** message to appear, then disconnect the USB device from the computer.



# APPENDIX B

## Hard Drive Configuration


DIGIOP™ systems perform specific hard drive partitioning. To view the contents of the hard drive, you must first shut down NetBackup Agent. See Appendix A for more information.

### NOTE

*Backup your system before shut down. The Backup feature is accessed from: **TOOLS > Configure > System**.*

- DIGIOP™ systems are configured using multiple partitions.
- Partitions may contain the operating system, drivers, and setup or data files.
- Most files and software are in folders named DIGIOP or DissTech.

**Table 3. Drive Partitions**

Drive	Size	Description
 CAUTION	Do not access or modify any drives unless specifically directed to by DIGIOP™ Technical Support. Most files are encrypted and affect system operation.	
System C:\	Approx. 33.5 GB	Windows OS and the system software; Windows folder structure
DATA D:\	Dependent on HDD size	DissTech (video files), Database, and Index files
DVD R/W E:\ Drive		Note: Drive letter may change

### NOTE

*To ensure that system configuration and license data is not lost, you must back up the system regularly or whenever the system is reconfigured. The Backup feature is accessed from **TOOLS > Configure > System**.*

## OTHER DRIVES

Depending on the configuration of the system and the amount of storage space available, other drives may be used for data storage. Once the system has consumed all DATA storage drives, it searches for the next drive in alphabetical order and starts recording data on that drive.

### NOTE

*Any drive 4 GB or greater in size is considered by the system to be a storage device. The system will attempt to write data to it after the DATA drives are full.*



## APPENDIX C

# Software Upgrade to DIGIOP ELEMENTS™

DIGIOP™ systems with previous software versions can be upgraded only if the software is installed on one of the following computers:

- Dell OptiPlex 760
- Dell OptiPlex 960
- Dell Precision T3400
- Dell PowerEdge R310 or newer computer a Pentium D processor (or better) running Microsoft XP Professional

### XP Embedded Systems (DIGIOP™ Server software v7.0-7.4)

DIGIOP™ systems with a Microsoft XP Embedded operating system can be upgraded to DIGIOP™ v7.6.1 using the Image Method (see below) upgrade procedure. The purchase of an upgrade SKU, which includes a license for a Microsoft Windows XP Professional operating system, is required.

### XP Professional Systems (DIGIOP™ Server software v7.5-7.6.1)

DIGIOP™ systems with a Microsoft XP Professional operating system can be upgraded to DIGIOP ELEMENTS™ (v8.0) software and may use either the Installer Method (see below) or the Image Method with the purchase of an upgrade SKU, which includes a license for Windows 7 operating system.

## C.1 Installer Method (non-destructive upgrade)

This method installs DIGIOP ELEMENTS™ software suite including DIGIOP™ Core, DIGIOP™ Control, and DIGIOP™ Data on the server. The Installer Method upgrade can be installed on DIGIOP™ 7.5 and newer software running on one of the DIGIOP™ system installed on the Dell hardware platforms listed above.

Notes:

- Settings in DIGIOP v7.5 and newer are upgraded along with the installation
- Settings for DIGIOP versions prior to v7.5 cannot be export/imported
- Can upgrade from XP Professional (v7.5 and above)
- Cannot upgrade from XP Embedded (v7.4 and below)

## C.2 Image Method (format and image installation)

The Image Method has two options:

### Option 1

This option formats (erases) the hard drive system disk partition and install a Microsoft Windows 7 operating system with DIGIOP ELEMENTS™ including DIGIOP™ Core, DIGIOP™ Connect, and DIGIOP™ Control. Recorded video and other data stored on other hard



drives or partitions are not affected. This method is recommended only for recovery and re-imaging of systems with DIGIOP ELEMENTS™ v8.x or newer. This method should not be used on systems running DIGIOP™ software earlier than v8.0.

### Option 2

This option formats (erases) the entire hard drive including all recorded video and other data stored on it, and installs complete image with a Microsoft Windows 7 operating system and DIGIOP™ Core, DIGIOP™ Connect, DIGIOP™ Control, and DIGIOP™ Data. The Image Method can be installed on any one of the Dell hardware platforms listed above.

Notes:

- All settings and recorded video will be erased from the hard drive.
- Settings cannot be exported from the old system and then imported to the new one
- A SKU can be purchased that includes a Microsoft Windows 7 image and license.



## APPENDIX D

# Adding DIGIOP™ Licenses

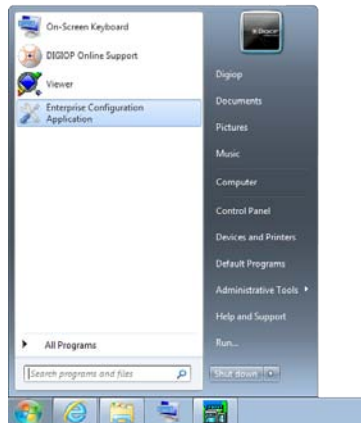
Licenses are added to the system after system recovery, to increase the number of available camera channels, and to add Data features that require system licences.

Your system is initially provided with two licences that are pre-loaded: a base licence, and a channel license. During system recovery, the base license, channel license, and all additional licences acquired for your system must be re-installed.

### Installing additional licenses

To install additional licenses, do the following:

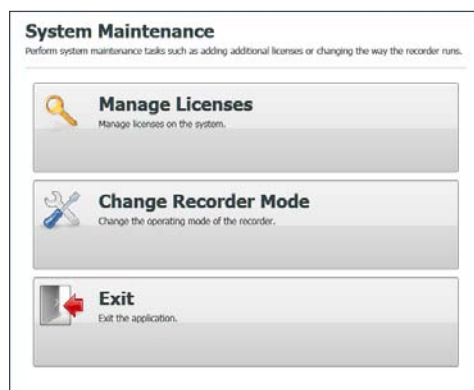
1. Acquire your new License ID and Password from your DIGIOP™ dealer, or from DIGIOP, Inc.
2. If the Kiosk mode recorder is running on the server desktop:
  - a. Login to the Kiosk recorder.
  - b. Click the **Tools** button and select **Exit Recorder**.
3. Click the Windows **Start** button, then select **Enterprise Configuration Application**. Depending on your system configuration, the Start menu may appear different from the following screen capture.



4. In the System Maintenance window, click **Manage Licenses**.

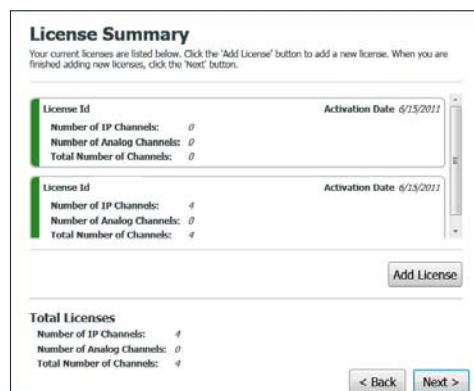


## APPENDIX D: ADDING DIGIOP™ LICENSES



Selecting Manage Licenses opens the License Summary Display.

- On the License Summary display, click **Add License**.



- On the License Activation display, enter your new License ID and Password
- Select **Activate License Online** if you have an Internet connection. Otherwise, select **Activate License Manually** and call DigiOP Support to complete the activation.




### License Activation

Please enter the license information below to begin the activation process.


License Id

0

Password



**Activate License Online**  
Select this option to immediately connect to the license server and activate your license online. (Internet Connection is Required)



**Activate License Manually**  
Select this option to generate an activation request which may be copied from this machine and sent to the license server from a workstation with access to the internet.

< Back

8. Follow the on-screen instructions to complete the activation process. This process may require a system restart.



### APPENDIX E File Naming Conventions

**NOTE** *Drives A through F are reserved for the operating system.*

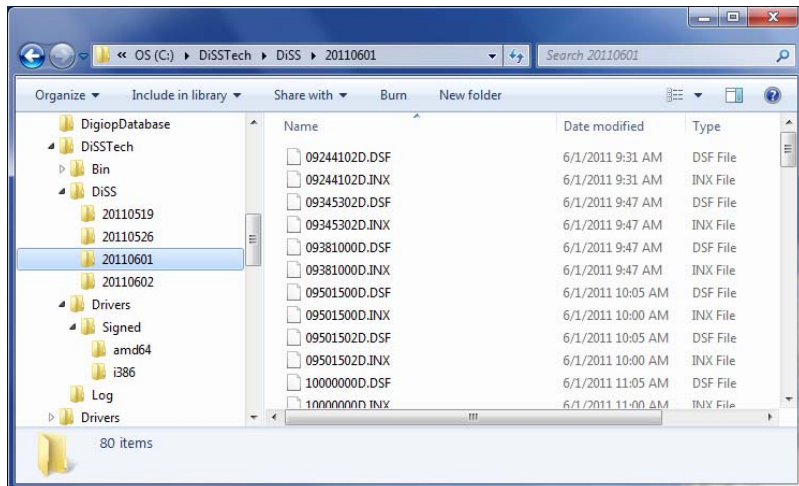
The Server application saves recorded images on the G:/ drive. When the G:/ drive is full, images are saved to the H:/ drive. When the H:/ drive is full (or if no H: drive exists), images are saved to the I:/ drive, etc.

**NOTE** *Any drive 4GB or greater in size is considered a storage device by the system.*

#### DAILY DIRECTORIES

Each day the system runs, the Server application creates a new directory under DiSSTech\DiSS. These daily directories are formatted as YEAR-MONTH-DAY (yyyymmdd).

**Example:** The directory called 20110601 is for June 1, 2011.



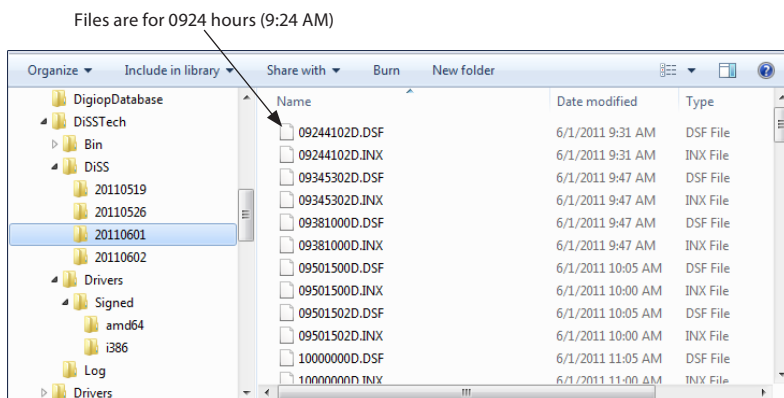


## File Naming Convention

In each daily directory, files are saved in encrypted .DSF and index (.INX) format. The .DSF file can be viewed using a utility, such as the DIGIOP™ Connect remote access viewer or the DIGIOP™ Enterprise viewer.

These hour files are in the format HOUR (24 hours)–MINUTE–SECOND–CAMERA CODE–Event Type, using two digits each (hhmmsscc).

**Example:** The file called 09244102D.DSF is the hourly video file for the .INX and .DSF files in directory 20110601.



For the example above:

- HOUR = 09 (9 AM)
- MINUTE = 24 minutes
- SECOND = 41 seconds
- CAMERA CODE = Camera 00 (Camera 1 is 00, Camera 2 is 01, Camera 3 is 02, etc.)
- Event Type = D

The video file size depends largely on the duration of the recording, the recording modes (e.g., motion versus continuous), and compression type.



## APPENDIX F

# TCP/IP Port Settings Using the Firewall

If there is a firewall between the DVR and the PCs on remote sites running the DIGIOP™ Remote Manager software, you must open ports to allow communications. The tables below contain TCP/IP port settings and router port forwarding settings:

**Table 4. TCP/IP settings**

TCP/IP	Port (TCP)*
Log-in connection	7000
Transmission for live viewing	8000, 8001
Transmission for remote playback (VOD)	9000, 9001
Connection for server diagnosis	8002
Transmission for alarmed video notification	8003
Time synchronization	3000
SMTP for email event notification	25
Two-Way Audio	7021
Event notification	8875 (UDP) *Each port number is fixed Multicast protocol port, IP = 230.255.255.255
DIGIOP™ Data	24752

**Table 5. Router Ports Forwarded**

	Ports		Forward
Logon	7000	TCP	Yes
Live transmission	8000, 8001	TCP	Yes
Checking Server	8002	TCP	Yes
Alarm input	8003	TCP	Yes
VOD transmission	9000, 9001	TCP	Yes
Time Sync	3000	TCP	Yes
Two-Way Audio	7021	TCP	Yes
Event Notification	8875	UDP	Yes
DIGIOP™ Data	24752	TCP	Yes



## APPENDIX G

# Server Hardware Troubleshooting

If you have problems with your system, check the following information. For additional questions, please contact DIGIOP™ Support at 1.877.972.2522.

## G.1 Dell Optiplex XE hardware common error indications

### POWER BUTTON LIGHT CODES

The diagnostic lights give much more information about the system state, but legacy power light states are also supported in your computer. The power light states are shown in following table.

Power Light State	Description
Off	Power is off, light is blank.
Blinking Amber	Initial state of light at power up. Indicates system has power, but the POWER_GOOD signal is not yet active. If the Hard Drive light is off, it is probable that the power supply needs to be replaced. If the Hard Drive light on, it is probable that an onboard regulator or VRM has failed. Look at the diagnostic lights for further information.
Solid Amber	Second state of the light at power up. Indicates the POWER_GOOD signal is active and it is probable that the power supply is fine. Look at the diagnostic lights for further information.
Blinking Green	System is in a low power state, either S1 or S3. Look at the diagnostic lights to determine which state the system is in.
Solid Green	System is in S0 state, the normal power state of a functioning machine. The BIOS will turn the light to this state to indicate it has started fetching op-codes.

### BEEP CODES

If the monitor cannot display error messages during the POST, the computer may emit a series of beeps that identifies the problem or that can help you identify a faulty component or assembly. The following table lists the beep codes that may be generated during the POST. Most beep codes indicate a fatal error that prevents the computer from completing the boot routine until the indicated condition is corrected.

Code	Cause
Code	Cause
1-1-2	Microprocessor register failure
1-1-3	NVRAM read/write failure
1-1-4	ROM BIOS checksum failure
1-2-1	Programmable interval timer failure



## APPENDIX G: SERVER HARDWARE TROUBLESHOOTING

Code	Cause
1-2-2	DMA initialization failure
1-2-3	DMA page register read/write failure
1-3	Video Memory Test failure
1-3-1 through 2-4-4	Memory not being properly identified or used
3-1-1	Slave DMA register failure
3-1-2	Master DMA register failure
3-1-3	Master interrupt mask register failure
3-1-4	Slave interrupt mask register failure
3-2-2	Interrupt vector loading failure
3-2-4	Keyboard Controller Test failure
3-3-1	NVRAM power loss
3-3-2	Invalid NVRAM configuration
3-3-4	Video Memory Test failure
3-4-1	Screen initialization failure
3-4-2	Screen retrace failure
3-4-3	Search for video ROM failure
4-2-1	No timer tick
4-2-2	Shutdown failure
4-2-3	Gate A20 failure
4-2-4	Unexpected interrupt in protected mode
4-3-1	Memory failure above address 0FFFFh
4-3-3	Timer-chip counter 2 failure
4-3-4	Time-of-day clock stopped
4-4-1	Serial or parallel port test failure
4-4-2	Failure to decompress code to shadowed memory
4-4-3	Math-coprocessor test failure
4-4-4	Cache test failure

### DIAGNOSTIC LIGHTS

To help troubleshoot a problem, your computer has four lights labeled 1, 2, 3, and 4 on the bank panel. When the computer starts normally, the lights flash before turning off. If the computer malfunctions, the sequence of the lights help to identify the problem.



## NOTE

After the computer completes POST, all four lights turn off before booting to the operating system.

Light Pattern	Problem Description	Troubleshooting Steps
	The computer is in a normal off condition or a possible pre-BIOS failure has occurred. The diagnostic lights are not lit after the computer successfully boots to the operating system.	Plug the computer into a working electrical outlet. If the problem persists, contact Dell.
	A possible processor failure has occurred.	Reseat the processor (see Processor information for your computer). If the problem persists, contact Dell.
	Memory modules are detected, but a memory failure has occurred.	If two or more memory modules are installed, remove the modules, then reinstall one module and restart the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error. If available, install working memory of the same type into your computer. If the problem persists, contact Dell.
	A possible graphics card failure has occurred.	Reseat any installed graphics cards. If available, install a working graphics card into your computer. If the problem persists, contact Dell.
	A possible floppy drive or hard drive failure has occurred.	Reseat all power and data cables.
	A possible USB failure has occurred.	Reinstall all USB devices and check all cable connections.
	No memory modules are detected.	If two or more memory modules are installed, remove the modules, then reinstall one module and restart the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error. If available, install working memory of the same type into your computer. If the problem persists, contact Dell.
	Memory modules are detected, but a memory configuration or compatibility error has occurred.	Ensure that no special requirements for memory module/connector placement exist. Ensure that the memory you are using is supported by your computer (see the Specifications section for your computer). If the problem persists, contact Dell.
	A possible expansion card failure has occurred.	Determine if a conflict exists by removing an expansion card (not a graphics card) and restarting the computer. If the problem persists, reinstall the card you removed, then remove a different card and restart the computer. Repeat this process for each expansion card installed. If the computer starts normally, troubleshoot the last card removed from the computer for resource conflicts. If the problem persists, contact Dell.



Light Pattern	Problem Description	Troubleshooting Steps
	Another failure has occurred.	Ensure that all hard drive and optical drive cables are properly connected to the system board. If there is an error message on the screen identifying a problem with a device (such as the floppy drive or hard drive), check the device to make sure it is functioning properly. If the operating system is attempting to boot from a device (such as the floppy drive or optical drive), check system setup to ensure the boot sequence is correct for the devices installed on your computer. If the problem persists, contact Dell

## G.2 Dell Optiplex 990 hardware common error indications

### BEEP CODES

The system can emit a series of beeps during start-up if the display cannot show errors or problems. These series of beeps, called beep codes, identify various problems. The delay between each beep is 300 ms, the delay between each set of beeps is 3 sec, and the beep sound lasts 300 ms. After each beep and each set of beeps, the BIOS should detect if the user presses the power button. If so, BIOS will jump out from looping and execute the normal shutdown process and power system.

Code	Cause
1-1-2	Microprocessor register failure
1-1-3	NVRAM
1-1-4	ROM BIOS checksum failure
1-2-1	Programmable interval timer
1-2-2	DMA initialization failure
1-2-3	DMA page register read/write failure
1-3-1 through 2-4-4	DIMMs not being properly identified or used
3-1-1	Slave DMA register failure
3-1-2	Master DMA register failure
3-1-3	Master interrupt mask register failure
3-1-4	Slave interrupt mask register failure
3-2-2	Interrupt vector loading failure
3-2-4	Keyboard Controller Test failure
3-3-1	NVRAM power loss
3-3-2	NVRAM configuration
3-3-4	Video Memory Test failure
3-4-1	Screen initialization failure





Code	Cause
3-4-2	een retrace failure
3-4-3	Search for video ROM failure
4-2-1	No time tick
4-2-2	Shutdown failure
4-2-3	Gate A20 failure
4-2-4	Unexpected interrupt in protected mode
4-3-1	Memory failure above address 0FFFFh
4-3-3	Timer-chip counter 2 failure
4-3-4	Time-of-day clock stopped
4-4-1	Serial or parallel port test failure
4-4-2	Failure to decompress code to shadowed memory
4-4-3	Math coprocessor test failure
4-4-4	Cache test failure

## DIAGNOSTIC LEDs

The diagnostic LEDs only serve as an indicator of the progress through the POST process. These LEDs do not indicate the problem that caused the POST routine to stop.

The diagnostic LEDs are located on the front of the chassis next to the power button. These diagnostic LEDs are only active and visible during the POST process. The diagnostic lights will blink when the power button is amber or off, and will not blink when it is blue. This has no other significance. Once the operating system starts to load, they turn off and are no longer visible.

The system includes pre-POST and POST LEDs in an attempt to help pinpointing a possible problem with the system easier and more accurate.

Diagnostic LEDs	Power Button LED	Problem Description	Troubleshooting Steps
		<p>The computer is either turned off or is not receiving power.</p>	<p>Re-seat the power cable in the power connector at the back of the computer and the electrical outlet.</p> <p>Bypass power strips, power extension cables, and other power protection devices to verify that the computer turns on properly.</p> <p>Ensure that any power strips being used are plugged into an electrical outlet and are turned on.</p> <p>Ensure that the electrical outlet is working by testing it with another device, such as a lamp.</p> <p>Ensure that the main power cable and front panel cable are securely connected to the system board.</p>



## APPENDIX G: SERVER HARDWARE TROUBLESHOOTING

Diagnostic LEDs	Power Button LED	Problem Description	Troubleshooting Steps
		A possible system board failure has occurred.	Unplug the computer. Allow one minute for the power to drain. Plug the computer into a working electrical outlet and press the power button.
		A possible system board, power supply, or peripheral failure has occurred.	Power off computer, leaving the computer plugged in. Press and hold the power supply test button at the rear of the power supply unit. If the LED next to the switch illuminates, the problem may be with your system board. If the LED next to the switch does not illuminate, disconnect all internal and external peripherals, and press and hold the power supply test button. If it illuminates, there could be a problem with a peripheral. If the LED still does not illuminate, remove the PSU connections from the system board, then press and hold the power supply button. If it illuminates, there could be a problem with the system board. If the LED still does not illuminate, the problem is with the power supply.
		Memory modules are detected, but a memory power failure has occurred.	If two or more memory modules are installed, remove the modules, then re-install one module and re-start the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error. If only one memory module is installed, try moving it to a different DIMM connector and re-start the computer. If available, install verified working memory of the same type into your computer.
		A possible CPU or system board failure has occurred.	Replace the CPU with a known good CPU. If the computer still fails to boot, inspect the CPU socket for damage.
		BIOS may be corrupt or missing.	The computer hardware is operating normally but the BIOS may be corrupt or missing.
		A possible system board failure has occurred.	Remove all peripheral cards from the PCI and PCI-E slots and re-start the computer. If the computer boots, add the peripheral cards back one by one until you find the bad one.
		Power connector not installed properly.	Re-seat the 2x2 power connector from the power supply unit.
		Possible peripheral card or system board failure has occurred.	Remove all peripheral cards from the PCI and PCI-E slots and re-start the computer. If the computer boots, add the peripheral cards back one by one until you find the bad one.
		A possible system board failure has occurred.	Disconnect all internal and external peripherals, and re-start the computer. If the computer boots, add the peripheral cards back one by one until you find the bad one. If the problem persists, the system board is faulty.
		A possible coin cell battery failure has occurred.	Remove the coin cell battery for one minute, reinstall the battery, and restart.



Diagnostic LEDs	Power Button LED	Problem Description	Troubleshooting Steps
		The computer is in a normal on condition. The diagnostic lights are not lit after the computer successfully boots to the operating system.	Ensure that the display is connected and powered on.
		A possible processor failure has occurred.	Re-seat the processor.
		Memory modules are detected, but a memory failure has occurred.	If two or more memory modules are installed, remove the modules (see your service manual), then re-install one module (see your service manual) and re-start the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error. If available, install working memory of the same type into your computer.
		A possible graphics card failure has occurred.	Ensure that the display/monitor is plugged into a discrete graphic card. Re-seat any installed graphics cards. If available, install a working graphics card into your computer.
		A possible floppy drive or hard drive failure has occurred.	Re-seat all power and data cables.
		A possible USB failure has occurred	Re-install all USB devices and check all cable connections.
		No memory modules are detected.	If two or more memory modules are installed, remove the modules (see your service manual), then reinstall one module (see your service manual) and restart the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error. If available, install working memory of the same type into your computer.
		Memory modules are detected, but a memory configuration or compatibility error has occurred.	Ensure that no special requirements for memory module/connector placement exist. Ensure that the memory you are using is supported by your computer.
		A possible expansion card failure has occurred.	Determine if a conflict exists by removing an expansion card (not a graphics card) and restarting the computer. If the problem persists, reinstall the card you removed, then remove a different card and restart the computer. Repeat this process for each expansion card installed. If the computer starts normally, troubleshoot the last card removed from the computer for resource conflicts.
		A possible system board resource and/or hardware failure has occurred.	Clear CMOS. Disconnect all internal and external peripherals, and restart the computer. If the computer boots, add the peripheral cards back one by one until you find the bad one. If the problem persists, the system board / system board component is faulty.



## APPENDIX G: SERVER HARDWARE TROUBLESHOOTING

Diagnostic LEDs	Power Button LED	Problem Description	Troubleshooting Steps
		Some other failure has occurred.	Ensure that the display/monitor is plugged into a discrete graphic card. Ensure that all hard drives and optical drive cables are properly connected to the system board. If there is an error message on the screen identifying a problem with a device (such as the floppy drive or hard drive), check the device to make sure it is functioning properly. If the operating system is attempting to boot from a device (such as the floppy drive or optical drive), check system setup to ensure the boot sequence is correct for the devices installed on your computer.

## ERROR MESSAGES

Error Message	Description
Address mark not found	The BIOS found a faulty disk sector or could not find a particular disk sector.
Alert! Previous attempts at booting this system have failed at checkpoint [nnnn]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support.	The computer failed to complete the boot routine three consecutive times for the same error. Contact Dell and report the checkpoint code (nnnn) to the support technician.
Alert! Security override Jumper is installed.	The MFG_MODE jumper has been set and AMT Management features are disabled until it is removed.
Attachment failed to respond	The floppy or hard drive controller cannot send data to the associated drive.
Bad command or file name	Ensure that you have spelled the command correctly, put spaces in the proper place, and used the correct pathname.
Bad error-correction code (ECC) on disk read	The floppy or hard drive controller detected an uncorrectable read error.
Controller has failed	The hard drive or the associated controller is defective.
Data error	The floppy or hard drive cannot read the data. For the Windows operating system, run the chkdsk utility to check the file structure of the floppy or hard drive. For any other operating system, run the appropriate corresponding utility.
Decreasing available memory	One or more memory modules may be faulty or improperly seated. Re-install the memory modules and, if necessary, replace them.
Diskette drive 0 seek failure	A cable may be loose or the computer configuration information may not match the hardware configuration.
Diskette read failure	The floppy disk may be defective or a cable may be loose. If the drive access light turns on, try a different disk.
Diskette subsystem reset failed	The floppy drive controller may be faulty.
Drive not ready	No floppy disk is in the drive. Put a floppy disk in the drive.
Diskette write protected	The floppy disk is write-protected. Slide the write-protect notch to the open position.
Gate A20 failure	One or more memory modules may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.
General failure	The operating system is unable to carry out the command. This message is usually followed by specific information—for example, Printer out of paper. Take the appropriate action to resolve the problem.



Error Message	Description
Hard-disk drive configuration error	The hard drive failed initialization.
Hard-disk drive controller failure	The hard drive failed initialization.
Hard-disk drive failure	The hard drive failed initialization.
Hard-disk drive read failure	The hard drive failed initialization.
Invalid configuration information-please run SETUP program	The computer configuration information does not match the hardware configuration.
Invalid Memory configuration, please populate DIMM1	DIMM1 slot does not recognize a memory module. The module should be re-seated or installed.
Keyboard failure	A cable or connector may be loose, or the keyboard or keyboard/mouse controller may be faulty.
Memory address line failure at address, read value expecting value	A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.
Memory allocation error	The software you are attempting to run is conflicting with the operating system, another program, or a utility.
Memory data line failure at address, read value expecting value	A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.
Memory double word logic failure at address, read value expecting value	A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.
Memory odd/even logic failure at address, read value expecting value	A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.
Memory write/read failure at address, read value expecting value	A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.
Memory size in CMOS invalid	The amount of memory recorded in the computer configuration information does not match the memory installed in the computer.
Memory tests terminated by keystroke	A keystroke interrupted the memory test.
No boot device available	The computer cannot find the floppy disk or hard drive.
No boot sector on hard-disk drive	The computer configuration information in System Setup may be incorrect.
No timer tick interrupt	A chip on the system board might be malfunctioning.
Non-system disk or disk error	The floppy disk in drive A does not have a bootable operating system installed on it. Either replace the floppy disk with one that has a bootable operating system, or remove the floppy disk from drive A and restart the computer.
Not a boot diskette	The operating system is trying to boot to a floppy disk that does not have a bootable operating system installed on it. Insert a bootable floppy disk.
Plug and play configuration error	The computer encountered a problem while trying to configure one or more cards.
Read fault	The operating system cannot read from the floppy or hard drive, the computer could not find a particular sector on the disk, or the requested sector is defective.
Requested sector not found	The operating system cannot read from the floppy or hard drive, the computer could not find a particular sector on the disk, or the requested sector is defective.
Reset failed	The disk re-set operation failed.
Sector not found	The operating system cannot locate a sector on the floppy or hard drive.



## APPENDIX G: SERVER HARDWARE TROUBLESHOOTING

Error Message	Description
Seek error	The operating system cannot find a specific track on the floppy disk or hard drive.
Shutdown failure	A chip on the system board might be malfunctioning.
Time-of-day clock stopped	The battery might be dead.
Time-of-day not set-please run the System Setup program	The time or date stored in System Setup does not match the computer clock.
Timer chip counter 2 failed	A chip on the system board may be malfunctioning.
Unexpected interrupt in protected mode	The keyboard controller may be malfunctioning or a memory module may be loose.
WARNING: Dell's Disk Monitoring System has detected that drive [0/1] on the [primary/secondary] EIDE controller is operating outside of normal specifications. It is advisable to immediately back up your data and replace your hard drive by calling your support desk or Dell	During initial startup, the drive detected possible error conditions. When your computer finishes booting, immediately back up your data and replace your hard drive (for installation procedures, see "Adding and Removing Parts" for your computer type). If no replacement drive is immediately available and the drive is not the only bootable drive, enter System Setup and change the appropriate drive setting to None. Then remove the drive from the computer.
Write fault	The operating system cannot write to the floppy or hard drive.
Write fault on selected drive	The operating system cannot write to the floppy or hard drive.
X:\ is not accessible. The device is not ready	The floppy drive cannot read the disk. Insert a floppy disk into the drive and try again.



## APPENDIX H

# System Troubleshooting

### H.1 Unit does not power up

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits could have on overcurrent protection and supply wiring.

Questions to ask beforehand (to help find root cause of issue):

- Was the unit working beforehand? If so, for how long?
- Did anything happen that may have caused this (lightning strike, power failure)?
- Is this unit on a UPS? If so, is it connected on the power-protected side and not the surge side?

### H.2 Troubleshooting Questions/Suggestions



*This installation should be performed only by a qualified service person; it should conform to all municipal codes.*

- Verify that the power lead going into the system is live.
- Check that the power switch is turned on.
- Visually inspect whether the LEDs are on and the power supply and CPU fans are operating.
- Switch the power cord to another outlet.
- Switch to another power cord.
- Open the cover to check voltages with a voltmeter on the power supply. These should be 12v and 5v.
- Inspect the main board for bulging capacitors.
- Check the processor heat sink and make sure it is properly installed.
- Check the diagnostic lights for hardware reference. Boot the system with the Recovery CD in the drive. Go into the Tools area and then the Diagnostics (Dells Only), then check whether the hard drive detects any problems. If not, try another power connector.
- DIGIOP™ Technical Support will have to open a trouble ticket with Dell and possibly dispatch an on-site technician in coordination with the servicing dealer. Or, a replacement part may be sent.
- If all these items have been checked and the problem still cannot be solved in the field, contact DIGIOP™ Support at 1.877.572.2522.



### H.3 Auto Reboot occurs when the Server is running

Unit auto reboots from within the Server software:

- Check all camera signals. The voltage should be 1.0 – 1.5 volts from peak to peak.
- Make sure the capture card is detected by the unit and that the drivers are properly installed.
- Unplug all camera signals from the system and monitor for up to several hours.
- Check the Event Log for references to the root cause of the error.
- Check the Microsoft Windows Event Viewer for the root cause of the error.
- Perform a factory field recovery in case this is caused by software corruption.
- Check the memory module(s) and make sure it is properly seated. Uninstall and reinstall it. If there are multiple modules, remove each and test each individually.
- Perform Western Digital® Data Lifeguard Tools with the option to write zeros to the drive (located on Recovery Media of version 6.10.2 and above).
- If all these items have been checked and the problem still cannot be solved in the field, contact DIGIOP™ Support at 1.877.572.2522.

### H.4 Auto Reboot occurs before the Server launches

Unit reboots before loading Windows and/or the DIGIOP ELEMENTS™ Server software:

- If unit reboots after completing POST (power on self test), the problem could be in the hardware, memory, hard disk, and/or motherboard.
- If the unit loads Windows and reboots when attempting to load the software, check the Microsoft Windows System Device manager for conflicts with device drivers. Re-install driver(s), as needed.
- Load the BIOS update from the Recovery disk.
- Perform field recovery with the factory setting options.
- If all these items have been checked and the problem still cannot be solved in the field, contact DIGIOP™ Support at 1.877.572.2522.

### H.5 Unit powers on then shuts off

The unit powers on, but only stays on for about 3–4 seconds before it shuts off:

- Check the heat sink and the processor. Make sure all the latches are secured and the CPU is properly installed.
- Make sure the processor has the correct amount of thermal solution (thermal grease) between the heat sink and the processor.
- Check the memory module(s) and make sure it is properly seated. Uninstall it and reinstall. If there are multiple modules take each one out and test each individually.
- Check all power cables coming from the power supply.
- Check voltages coming from power supply; these should be 12v and 5v.



- Check the Dell diagnostic lights for the associated hardware reference (see tables above in this guide). If more assistance is required, DIGIOP™ Support must open a trouble ticket with Dell and possibly dispatch an on-site technician in coordination with the servicing dealer. A replacement part may also be sent.
- If all these items have been checked and the problem still cannot be solved in the field, contact DIGIOP™ Support at 1.877.572.2522.



### APPENDIX I

# Recovering a Lost Password

If an administrative password is lost, this procedure lets you reset the password.

1. Attach a keyboard to the system. You must have an external keyboard to perform this procedure.

#### NOTE

*If you need to attach a PS2 keyboard, (1) shut down the system, (2) attach the keyboard, and then (3) restart the system.*

2. Enter the following keystrokes in this order:

Press and hold Shift+ALT and then press 0 (and release) and then 9 (and release) to exit.

3. Turn off NetBackup agent and open Windows Explorer. See Appendix A, "System Tray programs" for information about turning off the NetBackup Agent.
4. Open the C: drive and navigate to DiSSTech and find the dissuserlist.ini file.
5. Delete the dissuserlist.ini file.
6. Restart (from the Start menu).
7. When you are prompted to enter a new password for the admin user, LEAVE THE PASSWORD FIELD BLANK.
8. Click **OK**. The Server software launches.
9. Go into **TOOLS > Configure**.
10. Set the passwords for each user.



## APPENDIX J

# Data Server Streams

The DIGIOP™ Data Server includes several preset data streams. Each data stream includes parameter settings that are displayed and usually setup when the stream is added to the server. This appendix defines the parameter settings for those streams.

### Black Analytics

This data stream captures digital analytics information from DIGIOP™ Black cameras. The analytics can provide counts of traffic entered and traffic exited.

Parameter settings:

- Name — Name assigned to the camera
- IP Address — IP address of the camera
- Stream number — Camera stream. Use stream number = 1.
- SSL checkbox — For secure socket layer use.
- Username/password/confirm password — security credentials for the camera internal setup.
- Associated resources — Associated resources are used to configure fraudulent exception transactions.

### DigiopNCB, Infinias Intelli-M, pcAmerica, RetailJ Register

**DigiopNCB:** This data stream captures information from the DIGIOP3D camera system. The analytics provide counts on traffic entered and traffic exited.

**Infinias Intelli-M:** Select this option for data stream capture from Infinias Intelli-M access control system.

**pcAmerica:** Select this option for data stream capture from the custom pcAmerica register.

**RetailJ Register:** Select this option for data stream capture from the custom RetailJ system.



## APPENDIX J: DATA SERVER STREAMS

DIGIOPNCB

Name: My DigiopNCB

Listen Port: 0

Associated Resources: Drag Here To Add

Save Cancel

Parameter settings:

- Name – Name assigned to the device. This name will appear as an item under the data server in the left frame.
- Listen Port – The port through which DIGIOP™ Control will receive data from the device. The IP address of the NVR/hDVR is configured in the device.
- Associated Resources – Associated resources are used to configure fraudulent exception transactions. These items bind a device to an analytic event. To use this feature, drag the analytic device into the associated resource for the device.

### NOTE

Analytic devices are devices associated with a resource to a POS system to monitor certain types of transactions.

## Gilbarco

Select this option for data stream capture from Gilbarco® devices.

GILBARCO

Name: My Gilbarco

Connection Type: ☒ Tcp ☐ Serial

Listen Port: 0

Associated Resources: Drag Here To Add

Save Cancel

GILBARCO

Name: My Gilbarco

Connection Type: ☒ Tcp ☐ Serial

Serial Port: COM1

Baud Rate: 0

Data Bits: 0

Handshake: None

Stop Bits: None

Parity: None

Associated Resources: Drag Here To Add

Save Cancel

Parameter settings:

- Name – Name assigned to the cash register. This name will appear as an item under the data server in the left frame.
- TCP or Serial – Option to receive data through a TCP/IP or Serial interface.



- Listen Port – (for TCP connection type) the port through which the NVR/hDVR will receive data from the Gilbarco device. The IP address of the NVR/hDVR is configured in the device.
- Serial Port, Baud Rate, Data Bits, Handshake, Stop Bits, Parity – (for Serial connection type) Settings of the Gilbarco device serial port that is connected to the NVR/hDVR serial port.
- Associated Resources – Associated resources are used to configure fraudulent exception transactions. These items bind a device to an analytic event. To use this feature, drag the analytic device into the associated resource for the device

## Line Capture

Line Capture is a generic driver for receiving live data from a register that is not yet integrated into DIGIOP ELEMENTS™.

The image displays two views of the 'LINE CAPTURE' configuration window. The left view shows the 'TCP' connection type selected, with fields for Name, Line Ending Chars, Max Line Length, Listen Port, and Associated Resources. The right view shows the 'Serial' connection type selected, with additional fields for Serial Port, Baud Rate, Data Bits, Handshake, Stop Bits, and Parity. Both views include 'Save' and 'Cancel' buttons at the bottom.

Parameter settings:

- Name – Name assigned to the line capture data. This name will appear as an item under the data server in the left frame.
- Line Ending Chars – Use default settings. Contact DIGIOP™ support for more information
- Max Line Length – Use default settings. Contact DIGIOP™ support for more information
- TCP or Serial – Option to receive data through a TCP/IP or Serial interface.
- Listen Port – (for TCP connection type) the port through which the NVR/hDVR will receive data. The IP address of the NVR/hDVR is configured in the sending device.
- Serial Port, Baud Rate, Data Bits, Handshake, Stop Bits, Parity – (for Serial connection type) Settings of the sending device serial port that is connected to the NVR/hDVR serial port.
- Associated Resources – Associated resources are used to configure fraudulent exception transactions. These items bind a device to an analytic event. To use this feature, drag the analytic device into the associated resource for the device



### NCR Cash Register

Select this option for data stream capture from NCR® cash registers.

The screenshot shows the 'NCR CASH REGISTER' configuration window. It has a title bar with the text 'NCR CASH REGISTER'. Inside, there is a 'Name' field with the value 'My NCR Register'. Below it are several fields: 'Serial Port' (COM1), 'Baud Rate' (9600), 'Data Bits' (8), 'Handshake' (None), 'Stop Bits' (One), and 'Parity' (None). At the bottom left, there is an 'Associated Resources' section with a text box that says 'Drag Here To Add'. At the bottom right, there are two buttons: 'Save' and 'Cancel'.

Parameter settings:

- Name — Name assigned to the cash register. This name will appear as an item under the data server in the left frame.
- Serial Port, Baud Rate, Data Bits, Handshake, Stop Bits, Parity — Settings of the cash register serial port that is connected to the NVR/hDVR serial port.
- Associated Resources — Associated resources are used to configure fraudulent exception transactions. These items bind a device to an analytic event. To use this feature, drag the analytic device into the associated resource for the device

### VeriFone Cash Register

Select this option to receive a data stream from a VeriFone® cash register. This data stream can be received at the NVR/hDVR through either TCP/IP or Serial communication.

The image shows two screenshots of the 'VERIFONE CASH REGISTER' configuration window. The left screenshot shows the 'Data Format' set to 'Standard' and 'Connection Type' set to 'Serial'. The right screenshot shows the 'Data Format' set to 'Authorization Feed' and 'Connection Type' set to 'Tcp'. Both screenshots have the same title bar, 'Name' field ('My Verifone Register'), and serial port settings ('COM1', '9600', '8', 'None', 'One', 'None'). The 'Associated Resources' section is identical in both, with a 'Drag Here To Add' text box. The 'Save' and 'Cancel' buttons are also present in both.



Parameter settings:

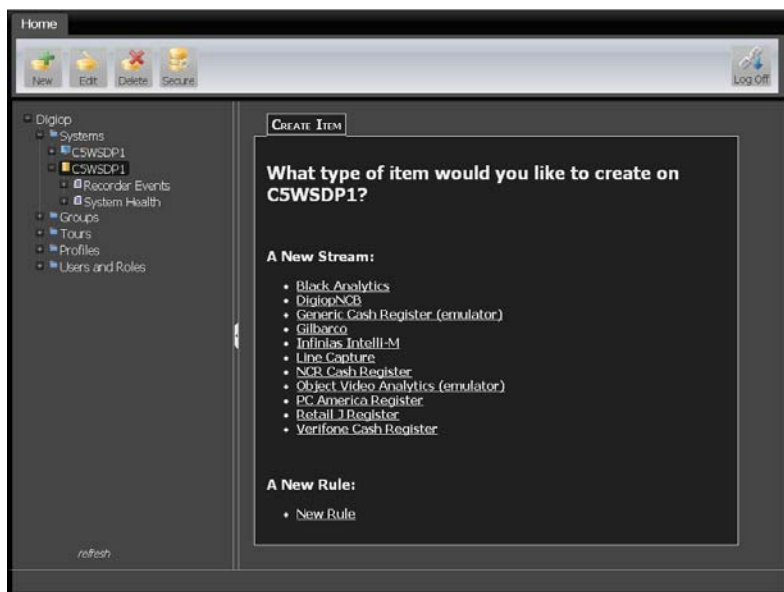
- **Name** — Name assigned to the cash register. This name will appear as an item under the data server in the left frame.
- **Data Format** — Select the Standard option unless notified by DIGIOP™ Inc.
- **TCP or Serial** — Option to receive data through a TCP/IP or Serial interface.
- **Listen Port** — (for TCP connection type) the port through which the NVR/hDVR will receive data from the cash register. The IP address of the NVR/hDVR is configured in the cash register.
- **Serial Port, Baud Rate, Data Bits, Handshake, Stop Bits, Parity** — (for Serial connection type) Settings of the Verifone cash register serial port that is connected to the NVR/hDVR serial port.
- **Associated Resources** — Associated resources are used to configure fraudulent exception transactions. These items bind a device to an analytic event. To use this feature, drag the analytic device into the associated resource for the device.



## APPENDIX K Create Rule

A rule is an action for a device that triggered. To setup a rule:

1. Click the **Data Server** icon in the left frame, then click **New**.



2. Click the **New Rule** link.



3. In the Name field, assign a Name to identify the rule.
4. In the Schedule field, open the drop-down list and select one of the options to determine when the rule is executed.
5. In the When field, open the drop-down list and select when the rule is executed per the schedule selected previously:
  - Always – The rule is always executed per the schedule
  - Any Data Received – The rule is executed when any data is received per the schedule
  - Exception Transaction – The Rule is executed when any exception transaction occurs per the schedule.
6. In the Device list, select the Device on which the rule is executed.
7. In the Action field, open the drop-down list and select the action that occurs when the rule executes:

### Count Forwarder

Count Forwarder Is an FTP up-loader for analytics only.



## APPENDIX K: CREATE RULE

**COUNT FORWARDER**

Name

Location ID

FTP Server

Username

Password

Parameter settings:

- Name — Assign an appropriate name for the upload.
- Location ID — Store number or register data ID.
- FTP Server — FTP server address.
- Username/password — Username and password for access to the FTP server.

### Digital Output

This action activates a control relay for a specific duration.

**DIGITAL OUTPUT**

Name

Output Number

Alarm Duration

Parameter settings:

- Name — Assign an appropriate name to these action settings.
- Output Number — Control relay number
- Alarm Duration — Duration the control relay is activated.

### Email

The Email action generates and sends an email message when the conditions of the Rule met.



The EMAIL configuration form is titled "EMAIL" in a small box at the top left. It contains the following fields: Name, SMTP Server, Username, Password, From, Email Recipients, Subject, and Body. Each field is represented by a horizontal white bar. The Body field is a larger text area. At the bottom of the form are two orange buttons: "Save" and "Cancel".

Parameter settings:

- Name — Sender name.
- SMTP Server — Email SMTP server address.
- Username/password — Username and password for access to the SMTP server.
- From — Sender email address.
- Email Recipients — List of recipients email addresses. Each email address is separated by a semicolon (;).
- Subject — Subject line of the email.
- Body — Message body of the email.

### Recorder/Camera Digital Output

This action activates a control relay for a specific duration.

The DIGITAL OUTPUT configuration form is titled "DIGITAL OUTPUT" in a small box at the top left. It contains the following fields: Name, Output Number, and Alarm Duration. Each field is represented by a horizontal white bar. The Output Number and Alarm Duration fields have dropdown arrows on the right. At the bottom of the form are two orange buttons: "Save" and "Cancel".

Parameter settings:

- Name — Assign an appropriate name to these action settings.
- Output Number — Control relay number
- Alarm Duration — Length of time the control relay is activated.

### Video Sensor

A Video Sensor is a Kiosk mode device that can utilize xml, motion, or digital input to trigger recording and Outputs.



## APPENDIX K: CREATE RULE

**VIDEO SENSOR**

Name

Video Server

Drag Video Server Here From Tree...

Sensor Number

1

Trigger Duration

Indefinite

Save

Cancel

To setup the parameter for this action, please contact DigiOP Support.



## APPENDIX L

# Warranty Information

Warranty information about your system may be found at: [www.digiop.com](http://www.digiop.com)

Click the **SUPPORT** button, then select **Warranty Information**.